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RECORD

OF THE

NINTH JUBILEE

OF THE

UNIVERSITY OF GLASGOW

1451-1901

Glasgow

James MacLehose and Sons

Publishers to the University

1901

With the Principal's Compliments.

Received April 3. 1902.

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Record of the Ninth Jubilee of the University of Glasgow

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UNIVERSITY OF GLASGOW

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Glasgow
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1901

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Record of the Ninth Jubilee of the University of Glasgow.

THE first year of the 20th century was also the 450th year of the University of Glasgow. It opened under the deepening gloom of the foreboding that our Queen, revered, beloved, was about to lay down the sceptre which she had swayed for sixty-three illustrious years. Our fears were too soon realised; and for a time it seemed as though a festival would be out of place amidst universal signs of recent sorrow. But it was felt that there could be no real incongruity between the mourning for our Sovereign and the expression of our gratitude to the good Providence which had watched over our University during all the vicissitudes of four centuries and a half, and of our desire to make our Ninth Jubilee an appropriate and memorable celebration. So the idea, that had grown in our minds during the closing months of 1900, took definite shape; it was resolved to hold our festival on the 12th, 13th, 14th, and 15th days of June; and to summon to a share in it the representatives of Letters and of Science from the Universities and Colleges of the world—from all the most notable of the Learned Societies and Associations of Europe and America, with many of the men who have gained renown by their personal services to the State, or to the cause of that high culture and humane civilisation of which Universities are the

nursing mothers. The following letter was despatched to the several Universities invited:

CANCELLARIUS,

CURIA, SENATUS UNIVERSITATIS GLASGUENSIS

AMPLISSIMO RECTORI SENATUIQUE

UNIVERSITATIS.....

S. D. P.

Sollenne est Sapientiae antistitibus siqua contigerit laetitiae feriarumque occasio eam in medium deferre ut litteratorum Reipublicae concives piis gaudiis intersint universi. Communis enim inter studia communia foventes necessitudo. Atque hoc praesertim aevo cum tot simultatium discordiarumque causae inter gentes intercedant, quam plurimi facimus fastorum opportunitatem per quam licet patria diversos litterarum commerciis inter se coniunctos ad doctum hospitium sodalitiumque convocare.

Sacra autem paramus saecularia cum haec nostra Glasguensis Academia natalem quadringentesimum quinquagesimum celebrare velit. Iustum igitur saeculorum orbis rettulit tempus patribus conditoribusque nostris pio animo grataque memoria parentandi, Minervam simul per tantum aevi spatium feliciter navatam commemorandi. Ecquis enim divini scriptoris immemor? *Laudemus viros gloriosos et parentes nostros in generatione sua.* Et nobis profuerunt *homines divites in virtute, pulchritudinis studium habentes.* Quippe anno post Chr. nat. millesimo quadringentesimo quinquagesimo primo Nicolaus V., Pontifex Maximus, non humilis ipse humanitatis fautor, reflorescentium id temporis artium scientiarumque pro nostratibus oratorem Jacobum II. exaudivit. Ergo a magna Roma matre lectae studiorum stirpes mox in terram novam digestae necnon multorum beneficiis atque liberalitate excultae in hanc tam nobilem Academiae molem creverunt.

Longa deinde regum Scotorum series, inter quos honoris causa nominandus fundator ille alter Iacobus VI., viri doctissimi consiliis Andreae Melvini obsecutus, perpetuusque Maecenatium atque huiusce mercatura artibusque florentissimae Urbis favor *Studium* illud *Generale* auxit ditavitque.

Cum autem ad Bononiensis maxime Universitatis normam taque regulam ab initiis placuerit doctrinae regimen accommodare, arctissima usque adhuc disciplinae rationisque scholasticae similitudo cum ceteris ubicumque Academiis communem affinitatem testatur. Quamobrem quasi nostro iure, humanissimi collegae, Senatum vestrum amplissimum precamur ut legatos mittat quos gaudiis caerimoniisque nostris interfuturos mensis Iunii die xii. laeti laetos excipiamus.

R. HERBERT STORY,
Praefectus et Vice-Cancellarius.

Dabamus a.d. vii Id. Januar. MCMI. Glasguae.

In the case of Learned Societies, the superscription was, "Societati doctissimae;" in the case of distinguished individuals, "Viro honorabili,"—with a relative alteration in each case in the final sentence.

To a number of these invitations replies were received expressing the deep regret with which they must be, for various sufficient reasons, declined. The list here given contains the names of the Universities and other bodies which accepted the invitations, and sent the delegates named to Glasgow.

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Professor August W. Witkowski.

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University of Lemberg.
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University of Prague (Bohemian).
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Professor A. A. W. Hubrecht, Sc.D., LL.D.

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Royal Academy of Sciences, Bologna.
Professor Giacomo Ciamician.

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Professor Alex. R. Simpson, M.D.

Professor Alex. Crum Brown, M.D.

Sir Herbert S. Oakeley, LL.D., Mus.D.

Professor John Rankine, K.C., LL.D.

Professor Simon S. Laurie, M.A., F.R.S.E.

SCOTLAND.

St. Andrews University.

Principal James Donaldson, M.A., LL.D.

Very Rev. Principal Alexander Stewart, M.A., D.D.

Principal John Yule Mackay, M.D.

Professor Peter R. Scott Lang, M.A., B.Sc.

Rev. Professor John Herkless, D.D.

Aberdeen—St. Mary's College (Blairs).

Right Rev. Bishop Chisholm, LL.D.

Very Rev. James M'Gregor.

EDINBURGH.

Fettes College.

Rev. William A. Heard, M.A.

New College.

Very Rev. Principal Robert Rainy, D.D.

Rev. Professor Paterson, D.D.

Royal College of Physicians.

Professor Thomas R. Fraser, M.D.

Peter A. Young, M.D.

Royal College of Surgeons.

James Dunsmure, M.D.

Francis Cadell, M.B.

GLASGOW.

Anderson's College.

A. Malloch Bayne, Esq.

Professor Thomas K. Dalziel, M.B., C.M.

Adam L. Kelly, M.D.

James B. Kidston, M.A.

Faculty of Physicians and Surgeons.

James Finlayson, M.D., LL.D.

John Burns, F.F.P.S.G.

James D. Maclaren, M.D.

St. Mungo's College.

Hugh Brown, Esq.

Henry Lamond, Esq.

Glasgow and West of Scotland Technical College.

Thomas Russell, Esq.

Robert Goodwin, Esq.

Church of Scotland Training College.

Rev. John Smith, B.D.

Alexander M. Williams, M.A.

United Free Church Training College.

Very Rev. Walter Ross Taylor, D.D.

United Free Church College.

Very Rev. Principal George C. Hutton, D.D.

Rev. Professor James Denney, D.D.

West of Scotland Agricultural College.

Rev. John Gillespie, LL.D.

Professor R. Patrick Wright, F.R.S.E.

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G. Duthie, Esq.

Board of Manufactures.

Sir Thomas D. Gibson Carmichael, Bart.

Educational Institute of Scotland.

Alex. Menzies, F.E.I.S.

Hugh Dickie, LL.D.

Faculty of Advocates.

Sir John Cheyne, K.C.

Sheriff Vary Campbell.

Franco-Scottish Society.

Archibald A. Gordon, C.A.

Royal High School.

John Edgar, Esq., M.A.

Royal Scottish Academy.

George Hay, R.S.A.

William D. M'Kay, R.S.A.

Royal Scottish Geographical Society.

James Burgess, LL.D., C.I.E.

Ralph Richardson, W.S.

Royal Society.

Robert Munro, M.A., M.D., F.R.S.E.

SCOTLAND.

Scottish Meteorological Society.
Professor Ralph Copeland, Ph.D., F.R.A.S.

Society of Antiquaries of Scotland.
Hon. Hew H. Dalrymple.

Society of Writers to the Signet.
Sir Charles B. Logan, W.S., LL.D.
John P. Wood, W.S., LL.D.

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William George Black, Esq.

Athenæum.
Thomas Lapraik, M.D.
Major John Cassells, V.D.

Chamber of Commerce.
John Galloway, Esq.
A. S. Michie, Esq.

Corporation of Glasgow.
Lord Provost Samuel Chisholm.
Bailie Charles J. Cleland.
Bailie William F. Anderson.
Bailie John Ferguson.
Councillor William Bilsland.
Councillor James H. Dickson.
Treasurer Alex. Murray.

Educational Institute—Glasgow Local Association.
John M'Whan, F.E.I.S.

Faculty of Procurators.
Joseph M. Taylor, LL.D.
David Murray, LL.D.

Geological Society.
James Barclay Murdoch, Esq.

High School.
H. J. Spenser, M.A., LL.D.
John Hutchison, M.A., LL.D.

Institute of Accountants and Actuaries.
Andrew S. M'Clelland, C.A.
Joseph Patrick, M.A., C.A.

Institute of Bankers in Scotland.
Robert Blyth, C.A.
George Anderson, Esq.

Institution of Engineers and Shipbuilders in Scotland.
William Foulis, Esq. (President).
Archibald Denny, Esq.
Thomas Kennedy, Esq.
Edward H. Parker, Esq.

Marine Biological Association of West of Scotland.
James F. Gemmill, M.A., M.D., C.M.

GLASGOW.

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Robert Gourlay, Esq.
James D. Hedderwick, Esq.

Natural History Society.
Alex. Somerville, B.Sc., F.L.S.

Philosophical Society.
Lord Blythswood.
Andrew Freeland Fergus, M.D.

Presbytery of Glasgow.
Rev. John Brown, B.D.
Rev. Robert Pryde, M.A.

Presbytery of Glasgow—United Free Church.
Rev. Robert S. Drummond, D.D.
Rev. George Reith, D.D.

Royal Glasgow Institute of the Fine Arts.
Patrick S. Dunn, Esq.
David Tullis, Esq.

School of Art.
Francis H. Newbery, Esq.
John J. Burnet, A.R.S.A.

School Board of Glasgow.
Harry A. Long, Esq.
Arch. Sloan, M.B., C.M.

Trades' House.
Deacon-Convener Jas. Macfarlane.
James Goldie, Esq.

Over 700 invitations were issued to individuals: citizens of Glasgow, noblemen, statesmen, judges, clergy, distinguished members of the civil service and servants of the crown, men high in the ranks of literature, art and science, with names familiar and honoured in various walks in life; Scottish Members of Parliament, the Lord Provosts of Edinburgh, Perth, Dundee, and Aberdeen, and the Provosts of Paisley, Greenock, and most of the other Burghs were invited.

The exigencies of professional, or parliamentary, life prevented many from accepting; but besides those whose names appear in the lists of delegates and of graduates, there was a brilliant assemblage, which included—among others—Sir Joseph Hooker, Sir J. Fairfax, Sir W. T. Gairdner, Rt. Hon. J. A. Campbell, M.P., Sir Archibald Geikie, Sir H. Gilzean Reid, Sir Henry Littlejohn, Sir Benjamin Baker, Sir J. Marwick, Viscount Dalrymple, Lord Inverclyde, Bishop Chisholm (Aberdeen), Bishop Harrison (Glasgow), Sir W. Ogilvie Dalgleish, Bart., The Solicitor General, M.P., Sir Lewis Morris, Mr. Neil Munro, Sir R. Pullar, Prof. Ernest Nys, LL.D., Very Rev. J. Cameron Lees, D.D., LL.D., Dean of the Thistle, Very Rev. D. Macleod, D.D., Very Rev. Thomas Leishman, D.D., The Rt. Rev. the Moderator of the General Assembly, A. Bonar Law, M.P., J. Colville, M.P., A. Cameron Corbett, M.P., A. Cross, M.P., J. Wylie, M.P., J. Wilson, M.P., J. Ure, LL.D., Sir David Richmond, Prof. Count Tarnowski (Cracow), Prof. Richard Lodge.

Provision was made for the entertainment of many of the guests in several hospitable houses in the town, for others in some of the hotels; and everything was done to make them feel at home, although to not a few the scenes around them were unfamiliar and the language was strange.

The earliest sign of the approach of the celebration was given on the eve of June 12th, when the students had a torchlight procession from the City Chambers, in George Square, to the University. Most of them, and their guests, home and foreign (of whom there were about 80), were in fancy costumes, more or less grotesque. They mustered on

the Terrace of the University and marched thence to George Square, where the torches were lit; and the procession returned to the point of departure by way of St. Vincent Street, Renfield Street, Sauchiehall Street, Park Circus, and University Avenue. The sight was witnessed by admiring thousands of spectators; and the effect of the long array of torches, as their bearers wound through the Park, was especially picturesque. The display was very well got up; the band played appropriate airs; and there was no roughness or disorder among either the crowds of onlookers or the processionists. On arriving in front of the University they were briefly addressed, from the central balcony, by the Principal and the Lord Provost; and after extinguishing the remains of their torches they dispersed amid loud cheers.

WEDNESDAY, 12th JUNE.

THE celebration proper began next morning, with a commemorative service in the venerable Cathedral of S. Kentigern, or, more popularly, S. Mungo. The distance (about two and a half miles) of the Cathedral from the University and the throng and traffic of the streets precluded the idea of a preliminary procession. The Service was announced for 10.30, and before that time a large number of the delegates in academic costume had taken their seats in the centre of the choir, and the side aisles were packed with those of the public who had been admitted by ticket.

At 10.30 the members of the Senate and Court arrived, and were met at the western door, and preceded up the Nave, by the officiating clergy—the Rev. Dr. Macadam Muir, minister of the Cathedral; the Very Rev. Dr. Macleod, of the Park Church; the Very Rev. Dr. Marshall Lang, Principal of the University of Aberdeen, accompanied by the Moderator of the General Assembly. Principal Story sat at the Communion Table, on which the Mace was laid, and at the close pronounced the Benediction. The Order of Service, which was printed and in the hands of the congregation, was as follows:

Order of Service.

PSALM C. *Old 100th.*

ALL people that on earth do dwell,
Sing to the Lord with cheerful voice.
Him serve with mirth, His praise forth tell,
Come ye before Him and rejoice.

Know that the Lord is God indeed ;
Without our aid He did us make :
We are His flock, He doth us feed,
And for His sheep He doth us take.

O enter then His gates with praise,
Approach with joy His courts unto :
Praise, laud, and bless His name always,
For it is seemly so to do.
For why? the Lord our God is good,
His mercy is for ever sure ;
His truth at all times firmly stood,
And shall from age to age endure. AMEN.

OUR HELP is in the name of the Lord Who made heaven and earth. We have heard with our ears, O God: Our fathers have told us, what work thou didst in their days, in the times of old.

God is a spirit, and they that worship Him must worship Him in Spirit and in truth.

Let us Pray.

Almighty God, our heavenly Father, incline Thy merciful ear unto our prayers, and enlighten us by Thy grace, that we may worthily celebrate Thy worship and love Thee with an everlasting love, through Jesus Christ our Lord.

Almighty God, who art rich in mercy to all them that call upon Thee, hear us as we come to Thee humbly confessing our sins, and imploring Thy pity and forgiveness. We have broken Thy holy laws by our deeds and by our words, and by the sinful affections of our hearts. We confess before Thee our disobedience and ingratitude, our pride and wilfulness, and all our great and sore shortcomings both towards Thee and towards our fellowmen.

Let Thy mercy rest upon us, O God; fill our hearts with the assurance of Thy forgiveness, and grant us Thy peace, through Jesus Christ our Lord.

God of all power and glory, who hast not appointed us unto wrath, but to obtain salvation by our Lord Jesus Christ, perfect and fulfil in us, we beseech Thee, the work of Thy redeeming mercy.

Enable us to be faithful to every trust which Thou in Thy providence hast committed to us, to discharge rightly the duties of our several relations in life, and to walk in Thy commandments and ordinances blameless.

Grant unto us moderation in all things: in mirth let us not be vain; in knowledge not puffed up; in zeal not bitter: and let us use the world as not abusing it, remembering that the fashion of this world passeth away.

Grant unto us spiritual wisdom, that we may discern what is pleasing to Thee, and follow what belongs to our peace: and let the knowledge and love of Thee and of Jesus Christ our Lord be our guide and portion all our days.

Let our hearts be filled with love of our brethren and goodwill to all men. Let us bear one another's burdens and so fulfil the Law of Christ, and follow the Divine example of Him who left us an example that we might follow His steps, and in whose prevailing name and words we further pray:

Our Father which art in heaven, Hallowed be Thy name, Thy Kingdom come, Thy will be done in earth as it is done in heaven, Give us this day our daily bread, and forgive us our trespasses, as we forgive them that trespass against us, And lead us not into temptation; but deliver us from evil: For Thine is the Kingdom, the power, and the glory, for ever and ever. AMEN.

FIRST LESSON. PROVERBS IV. 7-13.

(Read by Principal Lang.)

Wisdom is the principal thing; therefore get wisdom: and with all thy getting get understanding.

Exalt her, and she shall promote thee; she shall bring thee to honour when thou dost embrace her.

She shall give to thy head an ornament of grace: a crown of glory shall she deliver to thee.

Hear, O my son, and receive my sayings; and the years of thy life shall be many.

I have taught thee in the way of wisdom; I have led thee in right paths.

When thou goest, thy steps shall not be straitened; and when thou runnest, thou shalt not stumble.

Take fast hold of instruction; let her not go; keep her; for she is thy life.

TE DEUM LAUDAMUS. *H. Walton.*

We praise Thee, O God: we acknowledge Thee to be the Lord.

All the earth doth worship Thee: the Father everlasting.

To Thee all angels cry aloud: the heavens, and all the powers therein.

To Thee cherubin and seraphin continually do cry,

"Holy, holy, holy: Lord God of Sabaoth;

Heaven and earth are full of the majesty of Thy glory."

The glorious company of the apostles praise Thee.

The goodly fellowship of the prophets praise Thee.

The noble army of martyrs praise Thee.

The holy Church throughout all the world doth acknowledge Thee;

The Father of an infinite majesty;

Thine honourable, true, and only Son;

Also the Holy Ghost, the Comforter.

Thou art the King of Glory, O Christ;

Thou art the everlasting Son of the Father.

When Thou tookest upon Thee to deliver man Thou didst not abhor the Virgin's womb.

When Thou hadst overcome the sharpness of death Thou didst open the kingdom of heaven to all believers.

Thou sittest at the right hand of God in the glory of the Father.

We believe that Thou shalt come to be our judge.

We therefore pray Thee help Thy servants whom Thou hast redeemed with Thy precious blood.

Make them to be numbered with Thy saints in glory everlasting.

O Lord, save Thy people, and bless Thine heritage.

Govern them, and lift them up for ever.

Day by day we magnify Thee;

And we worship Thy name, ever world without end,

Vouchsafe, O Lord, to keep us this day without sin.

O Lord, have mercy upon us; have mercy upon us.

O Lord, let Thy mercy lighten upon us, as our trust is in Thee.

O Lord, in Thee have I trusted: let me never be confounded.

SECOND LESSON. 1st CORINTHIANS XIII.

(Read by the Bishop of Ripon.)

Though I speak with the tongues of men and of angels, and have not charity, I am become as sounding brass, or a tinkling cymbal.

And though I have the gift of prophecy, and understand all mysteries, and all knowledge; and though I have all faith, so that I could remove mountains, and have not charity, I am nothing.

And though I bestow all my goods to feed the poor, and though I give my body to be burned, and have not charity, it profiteth me nothing.

Charity suffereth long, and is kind; charity envieth not; charity vaunteth not itself, is not puffed up,

Doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil;

Rejoiceth not in iniquity, but rejoiceth in the truth;

Beareth all things, believeth all things, hopeth all things, endureth all things.

Charity never faileth: but whether there be prophecies, they shall fail; whether there be tongues, they shall cease; whether there be knowledge, it shall vanish away.

For we know in part, and we prophesy in part.

But when that which is perfect is come, then that which is in part shall be done away.

When I was a child, I spake as a child, I understood as a child, I thought as a child; but when I became a man, I put away childish things.

For now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known.

And now abideth faith, hope, charity, these three; but the greatest of these is charity.

Let us Pray.

O God, the Father of all mankind, Who art good to all, and Whose tender mercies are over all Thy works, let Thy way, we beseech Thee, be made known upon earth, and Thy saving health among all nations.

Bless abundantly Thy Holy Catholic Church, that it may be so guided and governed by Thy good Spirit that all who profess and call themselves Christians, may be led into the way of truth and hold the faith in unity of spirit, in the bond of peace, and in righteousness of life.

We pray for all to whom in any nation Thou hast committed rule and authority, especially for Thy servant our Sovereign Lord, King Edward, that Thou would'st grant him a long and useful life, faithful counsellors, loyal subjects, a prosperous reign, and finally bestow upon him a crown of glory.

We pray for our gracious Queen Alexandra, George Duke of Cornwall and York, the Duchess of Cornwall and York, and all the Royal Family.

Bless the High Court of Parliament at this time assembled, the King's Ministers and Counsellors, the Judges and Magistrates, especially the Magistrates of this City, the Navy and Army, and all who are called to the public service.

Teach, O Lord, all teachers of mankind, prosper all science and discovery, and cause art and learning to flourish.

O Father of Light and Fountain of all Knowledge, bless, we beseech Thee, all seminaries, universities, and schools of learning; and grant that, from them, the light of truth may shine with growing brightness on all men, so that wisdom and knowledge may be the stability of our times.

Especially we pray that Thy blessing may rest upon this our University. We give praise and thanks unto Thy Name for all the

favour which Thou hast shown to it during these four hundred and fifty years. We thank Thee for its sacred memories and hallowed associations, for its founders and benefactors: for those who have been apt to teach and wise to govern: who have from age to age enlarged the boundaries of knowledge and dispelled the darkness of ignorance: for those who have sought the truth and caused it to be shed abroad; and for all who have gone forth to diffuse the blessings which here they have received.

O God, Who hast been our dwelling-place in all generations, continue Thy mercy and loving-kindness to Thy servants, who enter into the labours of those who have gone before. Let Thy blessing rest upon the Chancellor, the Vice-Chancellor, the Rector, the Senate, the Court, the Members of the Council, the Professors, and the Students. Grant that the heritage of truth handed down from the past may be treasured up and transmitted, enriched, and extended, to those who shall come after us, that this ancient institution may ever be a well-spring of knowledge and virtue, of pure and undefiled religion for ages yet to come. And this we ask through Jesus Christ our Lord. AMEN.

HYMN. *S. Cuthbert's*

Within our Father's House of prayer,
Our fathers' God, we raise
To Thee Almighty and All Wise
  Our psalm of praise.

We bless Thy Holy Name that they
Of old were led by Thee
To love Thy word and seek the truth
  That maketh free;

To choose the life of sovereign aim
And high desire, that turns
From worldly meed of wealth and fame,
  And wisdom learns.

The goodly heritage they left
Is ours by Thy decree;
And ours to make it goodlier still
  And worthier Thee.

Help us to understand Thy works;
Thy mighty laws reveal,
Give us the soul to sympathise,
  The hand to heal;

The unselfish thought, the patient mind
That reverently inquires;
The heart from carnal grossness cleansed
By heavenly fires.

Let Thy great Spirit with Thy light
Illume our onward way,
And shine until we reach the realm
Of perfect day,

When we—toil, grief, and conflict o'er—
Before the eternal throne,
Thy glory shall behold, and know
As we are known. AMEN.

Let us Pray.

Vouchsafe, we beseech Thee, O God, to prosper all the work of our University; and grant unto all who rule, or teach, or learn therein, that they may know Him Who is the Way, the Truth, and the Life; that setting Thy holy will ever before them, they may do that which is well-pleasing in Thy sight: and, holding forth the Word of Truth, may shine as lights in the world, to the glory of Thy great Name; and to Thee, with Thy Son, and with the Holy Ghost, be all honour, dominion, and praise, world without end. AMEN.

SERMON.

(The Sermon was preached by Dr. Muir.)

"VIA, VERITAS, VITA."

"I am the Way, the Truth, and the Life."—*St. John* xiv. 6.

NOW, as always, Christ would turn His hearers from indulgence in vague imaginations to actual practical endeavour. The Home to which I am going, such in effect is one purport of Christ's answer, cannot as yet be accurately conceived by you. No human words can describe it, no human intellect can grasp it. Waste not time in brooding over it, trying to pierce the veil and see all that lies beyond. Be content rather to tread the way which leads to the Home—*that* is before you, is comprehensible by you, concerns you most; keep in the right way, and you need not fear that you will arrive at your right destination.

"I am the Way." Christ is the substance of His own teaching. It is His own personality which gives weight and meaning to His words. He laid down laws, He founded a kingdom, and of necessity opinions must be formed regarding Him, but after all it was not His teaching, His instruction, which impressed men and imparted life to them; it was Himself. It is not holding certain doctrines so much as being one in heart with Him that constitutes His true disciples.

"I Am The Way, the Truth, and the Life." The words have proved their power in all ages ever since they were uttered. They have been taken as the profoundest expression of mystical theology; they have been taken as the definition of "Christianity in its most simple and intelligible form"; they have been taken as the motto of our ancient University. No words can more strongly convey that in Christ alone is salvation. It is He Whom we meet at every step—from His presence we cannot go, or flee from

His Spirit. "Without the Way," such is the comment of the most famous of devotional books, "there is no going; without the Truth there is no knowing; without the Life there is no living."

The assurance that it is not this or that school of His disciples, nor this or that mode of conceiving His work, but that it is Christ Himself, with Whom we have to do in the last resort, with Whom, in a sense, we have alone to do, has imparted comfort to many a perplexed soul. A man finds that Christianity in one place is apparently quite a different thing from Christianity in another place; he finds that the belief of one is held by a second to be sadly insufficient; he finds that the belief of the second is held by yet a third to be a mass of incredible superstition. What is he to do? Where is he to turn? Which of them is the right way? For all of them seem to assert, This is the way; walk ye in it. But suddenly above the din of conflicting shouts is heard a still small voice, the voice of Him in honour of Whom all the shouts are raised, "I Am The Way." All these companies of disciples are, as it were, merely roads to Him; they are paths to the Great Highway. When He is found the agitation as to which of the numerous bands one should join begins to subside, for He is felt to be above them all; to be with Him is the chief thing, is, indeed, the one thing, which all are striving after. Worn out and repelled by the attempts to force all men to accept some special formula, the anxiety to have a correct definition almost causing forgetfulness of Him about Whom the controversy rages, it is with unspeakable relief that many have in thought, if not in word, cried with Charles Wesley:

> "Weary of all this wordy strife,
> These motions, forms, and modes, and names,
> To Thee, the Way, the Truth, the Life,
> Whose love my simple heart inflames,
> Divinely taught, at last I fly
> With Thee and Thine to live and die."

Many who have never adopted the faith of Christendom, or who have even renounced it, are ready to echo the exaltation of the Master above His interpreters. It is

becoming ever plainer that, in proportion as men are swayed by His precepts and conformed to His example, they are raised in the scale of being; that only as men see with His eyes and think with His thoughts will righteousness and peace prevail. It is His name that is the harbinger of light and blessing to those who are in darkness. While on the one hand men are setting aside dogmas regarding Him as obsolete and meaningless, on the other hand, strange to say, His personality never possessed a stronger fascination; never were His life and teaching studied with greater earnestness,

> "We faintly hear, we dimly see,
> In differing phrase we pray;
> But, dim or clear, we own in Thee
> The Light, the Truth, the Way."

There are those who may seem to have cast away all that makes belief of value; yet their counsel is—Act as if He were The Way. The Way may lead to nothing; still it is the Way in which to keep, and going by it you will not go astray. They cannot think of any better rule of conduct and of character than that one should frame one's life so that Christ may approve. There may be much that is hazy and beyond our grasp, but enough is left to show, almost more distinctly than ever, that the one trustworthy moral and spiritual guide is Jesus Christ our Lord.

"In a great orchestra," so has it been said in a recent work on the social question, "with all its varied ways of musical expression, there is one person who performs on no instrument whatever, but in whom, none the less, the whole control of harmony and rhythm resides. Until the leader comes, the discordant sounds go their various ways; but at his sign the tuning of the instruments ceases and the symphony begins. So it is with the spiritual leadership of Jesus Christ. Among the conflicting activities of the present time His power is not that of one more activity among the rest, but that of wisdom, personality, idealism. Into the midst of the discordant efforts of men He comes as One having authority; the self-assertion of each instrument of social service is hushed as He gives the sign; and

in the surrender of each life to Him it finds its place in the symphony of all."

"We look to Thee"—so wrote one who claimed to be free from traditional prepossessions.

"Thy Truth is still the Light
Which guides the nations stumbling on their way,
Stumbling and falling in disastrous night,
Yet hoping ever for the perfect day.
Yes! Thou art still the Life; Thou art the Way,
The holiest know; Light, Life, and Way of Heaven!
And they who dearest hope and deepest pray
Toil by the Light, Life, Way which Thou hast given."

"The Way, The Truth, and The Life." What is implied in making these words the motto of our University? It does not mean that all investigation must cease lest our religious beliefs should be shaken and shattered—that whatever seems to be inconsistent with previous opinions should be incontinently rejected. Rather it means that, acknowledging Him Who is The Truth to be our Lord, all truth must henceforth be doubly precious, that every new discovery is only another province added to His realm. It means that the Highest, Holiest Manhood is our standard. It means that the disciples of Him Who is The Truth can never advance His Kingdom by evasion or suppression or misrepresentation. It means that no authority or antiquity or custom, but truth must be supreme. It means that, although in our University the most diverse theological schools and ecclesiastical systems have their representatives, both among the teachers and the taught, yet the University itself is a direct product of Christian faith and Christian civilisation.

It is not inappropriate that the celebration of the ninth Jubilee should begin in the Cathedral. It was by one identified with this place that the University was founded. It was owing to the exertions of Bishop Turnbull that Pope Nicholas the Fifth, "the greatest of the restorers of learning," as Lord Macaulay termed him, "constituted a University to continue in all time to come in the city of Glasgow, 'it being ane notable place, with gude air and

plenty of provisions for human life'"; and to ensure "that the classes might begin with some degree of celebrity," he further granted a universal indulgence to all faithful Christians who should visit the Cathedral of Glasgow in the year 1451. We live under a different system and different conditions. Times have changed, customs have changed, beliefs have changed; the organisation of the Church has changed, the organisation of the University has changed; but it would be gross injustice not to pay a tribute of gratitude to the good Prelate and the enlightened Pontiff by whom so great a boon was conferred upon our land. We are prone to imagine that in the Church before the Reformation the sole object of its rulers was to keep the people in ignorance. The establishment of this University, and of other universities, is enough to dispel the error; and the assertion of John Hill Burton is not too strong, that "in the history of human things there is to be found no grander conception than that of the Church of the fifteenth century when it resolved, in the shape of the universities, to cast the light of knowledge abroad over all the Christian world." The University arose at a time and in the midst of movements which were fraught with tragic interest for its founders. The first printed book had made its appearance, and the Empire of the East was tottering to its fall. The capture of Constantinople by the Turks is said to have hastened the death of Nicholas the Fifth, overwhelmed by grief, shame, and fear for the stability of the Papacy. He might have seen a peril quite as great in the invention of printing, and in the universities which he himself was instrumental in establishing. We are not concerned with what he would have done had he foreseen the consequences of his policy; we are concerned only with what he did, and what he did entitles him to rank among the best benefactors of our city and our country.

Nine times fifty years have passed away since he sanctioned the erection of a University in this remote region, and conferred upon it all the privileges belonging to the famous University of Bologna; and the close of each of these periods of fifty years bears witness to marvellous vicissitudes

and transformations, whether in the University itself, in the city, in Scotland, in Britain, or in the world at large.

When the first Jubilee was reached, James the Fourth, who fell at Flodden, was sitting on the throne of Scotland; and a new world had a few years before been opened up by the discovery of America. At the second Jubilee the tremendous conflict of the Reformation was raging, and the ill-fated Mary Queen of Scots was still a child in France. When the third Jubilee came round, the long feud between England and Scotland was about to cease through the accession of the Scottish King to the English Throne. The fourth Jubilee found the Commonwealth established; King Charles the First had perished on the scaffold; Cromwell was overrunning Scotland; and the quaint Zachary Boyd, to whom the University is indebted for liberal benefactions, denounced him to his face in the lower church of this Cathedral. The fifth Jubilee fell at the end of the reign of William the Third and the beginning of the reign of Queen Anne. By the time of the sixth Jubilee the protracted struggle between the House of Stuart and the House of Hanover had come to an end; the hopes of the Jacobites had been quenched at Culloden; the Duke of Cumberland had received in recognition of his services the degree of Doctor of Laws from the University of Glasgow!! and Clive was laying the foundation of the British Empire in India. The seventh Jubilee occurred when the storm and agitation of the French Revolution had not sunk to rest, when the momentous career of Napoleon was becoming a menace to Europe, when Great Britain and Ireland were united, when Robert Burns had passed away, and Sir Walter Scott was rising into note. The eighth Jubilee was contemporary with the first great International Exhibition, which the public spirit of the good Prince Consort had devised and developed, and which it was fondly hoped might be the emblem and inauguration of universal and everlasting peace. Napoleon the Third had almost attained to supreme power in France, and the Duke of Wellington, "the great world-victor's victor," had almost entered into rest. And now the ninth Jubilee finds us at the completion

of the glorious Victorian era, mourning the departure of our beloved Queen, yet hailing with enthusiastic loyalty the accession of our new King; hoping eagerly that the smoking embers of the distressing war in South Africa may be speedily extinguished.

During those four hundred and fifty years what an array of names might be cited of those who, whether as Chancellors or as Principals, as Professors or as students, have been connected with the University—philosophers, theologians, historians, scholars, statesmen, orators, men of science, men of letters. Bishop Elphinstone, John Knox, Andrew Melville, Robert Baillie, Archbishop Leighton, Bishop Burnet, Thomas Reid, Colin Maclaurin, Adam Smith, James Watt, Thomas Campbell, Archbishop Tait, Professor Lushington, Principal Caird—what associations of learning, of thought, of discovery, of eloquence, of patient research, do names like these suggest. And if we include in our retrospect the succession of Lord Rectors, the strange fact appears that men most eminent in every walk of life have made their greatest efforts in obedience to the call of the students of this University. The ecclesiastical jurisdiction under which the University was instituted no longer prevails. The theological tests which under a later system were imposed have been repealed. The buildings in which the institution was early housed have been removed, and a nobler pile on a nobler site has been reared. Our city rich at this moment with the "triumphs of loom and forge," of arts and industry "from all the nations round," never gave greater indications of prosperity; and our University, showing no sign of decrepitude or decay, and putting forth fresh developments, is to-day welcoming representatives from kindred institutions all over the world, from ancient universities on the pattern of which the University of Glasgow was originally modelled, and from modern universities modelled on the pattern of the University of Glasgow.

"Oh! reverend mother of a strenuous race,
We do acclaim thee and confess thee great,
Who, like thy sisters scorning Time and Fate,
Nine times to-day hast kept thy year of Jubilee!"

It is a source of pride to be in any way connected with an institution round which are gathered memories so many and so sacred. There are among us not a few who think of our old College as fulfilling that ideal of a university sketched by Newman well-nigh half a century ago—"a place which attracts the affections of the young by its fame, wins the judgment of the middle-aged by its beauty, and rivets the memory of the old by its associations; a seat of wisdom, a light of the world, a minister of the faith, an Alma Mater of the rising generation." Whether or not it has been our privilege to study within its walls, we unite this day in recalling with admiration the men and the deeds of the past; in rejoicing that there are teachers happily surviving, whether still on the staff or labouring in other spheres, or spending in retirement their well-earned leisure, whose achievements have been as great, whose works have been as beneficial, whose names will be as illustrious, as any that have ever adorned our University annals; and in cherishing the confidence that a new era of usefulness and of glory is only beginning. We pray that the achievements of the centuries that are gone may be eclipsed by the achievements of the centuries that are to come; we pray that, on its serene height, apart from, yet beside, the stir and excitement and competition of the busy city, this home of learning may continue to be frequented, and to shed abroad light and health and peace; we pray that those who are trained within its walls may go forth equipped for the battle of life, and while diligently mastering the special principles of their own profession, never forgetting the vaster world around and the higher world above; we pray that they may apply their abilities and acquisitions to the worthiest and noblest ends; we pray that, ever mindful of their sacred motto and all that it involves, they may, in the strength and grace and Spirit of Him Who is the same yesterday and to-day and for ever, the Way, the Truth, and the Life, dedicate themselves to the glory of God and the service of man. And now unto God and our Father be glory for ever and ever. Amen.

PARAPHRASE II. *Kilmarnock.*

O God of Bethel! by whose hand
Thy people still are fed;
Who through this weary pilgrimage
Hast all our fathers led:

Our vows, our pray'rs, we now present
Before Thy throne of grace:
God of our fathers! be the God
Of their succeeding race.

Through each perplexing path of life
Our wand'ring footsteps guide;
Give us each day our daily bread,
And raiment fit provide.

O spread Thy cov'ring wings around,
Till all our wand'rings cease,
And at our Father's loved abode
Our souls arrive in peace.

Such blessings from Thy gracious hand
Our humble pray'rs implore;
And Thou shalt be our chosen God,
And portion evermore. AMEN.

BENEDICTION.

The grace of the Lord Jesus Christ, and the love of God, and the Communion of the Holy Ghost, be with you all. AMEN.

THE other functions, as named in the published programme for the 12th June, were the Reception of Guests and Delegates, and Presentation of Addresses in the Bute Hall; an At Home at Queen Margaret's College; and the Students Gaudeamus in the University Union. The first of these was timed for 2.30 p.m., so as to allow leisure for a little rest, and for luncheon, between it and the close of the religious service. It was, however, after three before the concourse

of delegates could be arranged according to their respective nationalities and constituencies, and conducted from the Examination, to the Bute, Hall, where they were eagerly awaited by an assemblage which filled almost every vacant space in that capacious chamber. The composition of the assemblage—to quote the description of the scene given in the columns of the leading Glasgow newspaper—was singularly striking. Scarcely had the doors been opened than the galleries and the seats on the side aisles were occupied by a fashionable throng, consisting for the most part of ladies in the brighest of seasonable costumes, but including also many reverend divines and doctors learned in the sciences and in philosophy, whose multi-coloured robes gave an added touch of splendour to the spectacle. The front area was reserved for delegates, and the rear was given up to past graduates and their friends, with a sprinkling of undergraduates, both ladies and gentlemen. In the organ gallery the students' choir, in their scarlet gowns, and numbering about 60 voices, made a brave show, and formed an effective background for the spectacle as witnessed from the area. From the musical standpoint, too, they covered themselves with honour, their rendering of some of the old familiar melodies, under the conductorship of Professor Glaister, being more than usually notable for harmony and artistic effects. They were accompanied on the organ by Mr. Harold Ryder.

While the musical prelude was in progress, the guests of the University arrived in rapid succession. The representatives of foreign universities were distinguished by the brilliance of their academic robes and the decorations which many of them also wore.

Towards half-past two o'clock interest became concentrated on the platform, in expectation of the entrance of the chief participants in the ceremonial. The long table in front of the rostrum was graced by two baskets of choice flowers placed at either end, the mace-stand filling the space between, and at the corners of the dais a couple of towering palms gave a pleasing setting to the platform tableau. There was still a little while to wait before the procession made its

appearance. At last it came into view, entering by the north door, the audience standing while the procession passed slowly down the central aisle. The way was shown by two ushers, and the delegates from each country were under the charge of stewards, by whom they were guided to their respective seats.

Lord Kelvin and Professor Sir Richard Jebb were readily recognised among the gorgeously-apparelled throng, and both received the greeting of old and cherished friends. A remarkable couple were the venerable Sir Joseph Hooker and Lord Lister, who, with Lord Kelvin, came as the representatives of the Royal Society. Other outstanding personalities from across the Border were Sir Henry Roscoe, Dr. Monro, Provost of Oriel, and Dr. Pelham, President of Trinity, Oxford; Sir John Evans, Lord Reay, Professor William Ramsay, Professor Sir Norman Lockyer; and several ladies from Girton and Newnham Colleges, Cambridge, and from Lady Margaret Hall and Somerville College, Oxford. The representatives from Ireland included the Marquis of Dufferin, who attended on behalf of the Royal University; and from Wales the delegates, consisting chiefly of the professors of the university colleges, numbered more than one prominent Scottish graduate. The Scottish universities sent many of their best-known professors, and the place which the University holds in the estimation of the community at large was fittingly shown by the presence of the Lord Provost and other civic dignitaries, and of the representatives of professional societies, and of commercial institutions. The British colonies and dependencies were worthily represented by men distinguished in various walks of life, having among the number such leaders in public affairs as Earl Beauchamp, who came with the address from the University of Sydney, and Lord Strathcona, who was charged with a like duty on behalf of M'Gill University, Montreal. The procession was brought up by the members of the Senate. The Vice-Chancellor, the Very Rev. Principal Story, was last, and immediately ascended the rostrum, where he was accompanied by Professor Stewart, the Clerk of the Senate.

The Vice-Chancellor said—Before I say the few words of welcome to our guests it is my duty to speak, I have a communication to read which, I am sure, will give the greatest gratification to the University: "I remember with what great pleasure I laid the foundation-stone of your new buildings in 1868, and I heartily congratulate the University on the celebration of the 450th year of its existence.—(Signed) THE KING."

I have also a message by telegraph from Heidelberg, of which I have the honour to be an alumnus: "Universitati Glasguensi: Vivat, Crescat, Floreat."

Proceeding, the Vice-Chancellor said—He who bears the burden of more than fourscore years can plead the strongest of all reasons for absenting himself from a public function, even as interesting and picturesque as that in which we are engaged. Yet, though we cannot dispute the validity of the excuse, we feel all the keenness of the disappointment of the hope that our venerable Chancellor should have presided on this occasion. We regret it on our own account; we regret still more on yours, who have done us the honour to come hither as our guests, that you cannot see at the head of our University the good old Scottish gentleman who fills our highest office—the representative of a noble house that for generations has served its country in war, in statesmanship, in law, in letters, with an ability and zeal that have made us all proud of the Dalrymples of Stair. In Lord Stair's name I thank you for your presence at a celebration of unique interest in our history, of interest, I trust, to all, and not least to those who are, if I may use the phrase, "of our own household," inheriting with us the traditions still honourable, the usages not yet wholly abolished by the efforts of successive "Commissions," of the national universities which have for many generations trained the hardy youth of our native land. We have lived and laboured together, proud, and never envious, of each other's successes. We are assured of your sympathy, as of that, too, of our friends who cultivate literature, not like us on a little oatmeal, but on the more nutritious fare of the richer plains of England; and we count on yours, not less confidently, who

have travelled far from other lands, to offer to us your congratulations on the completion of our 450th year.

We are, more or less, accustomed and well pleased to see our friends and fellow-countrymen from the south of the Tweed, and from across St. George's Channel. We sometimes, to our advantage, induce their wise men to become our instructors, and occasionally, to their advantage, we send them some of ours. But with you our intercourse is more limited. The wandering Scots scholar, poor and proud, is not found, as he used to be, ready to dispute in every college, and to stay his healthy appetite at the board of every monastery, in Europe. Religious differences and disuse of the Latin tongue have changed all that. But we take it all the kinder of you that you come to look us in the face, and see if our hair be as red and our bones as big as Agricola thought them; if our habitual dress is, as travellers tell, the kilt, our domestic music the bagpipe, our only viand porridge, and our only liquor whisky. We thank you for venturing into a *terra incognita*, and we believe that in return for your friendly boldness you will find the "barbarous people" will show you "no little kindness," as the Maltese showed St. Paul, not for your own sakes only, but for the sake of the friendships of the old time before us.

It is pleasant to know that we have amongst us colleagues from Coimbra, where Buchanan, *poetarum sui saeculi facile princeps*, was a professor in its college, and, by way of variety, for a time a prisoner in the cells of its Inquisition; another from Montauban, where Cameron taught after he resigned the Principalship of Glasgow. Geneva sends us, through one of the successors of Andrew Melville, a message which assures us that the city of Calvin still cherishes the name of the great Humanist, to whom her Academy owed several years' faithful service, and to whom Glasgow was indebted for the rescue of her University from the doom of irretrievable extinction. We have a delegate from Padua, where the name is not forgotten of the wondrous wizard, Michael Scott of Balwearie, so potent a magician that he could ring the bells of Notre Dame by waving his wand at Salamanca. And we extend a special

welcome to the honourable and learned delegate who brings to us the maternal greetings of Bologna, which, I trust, has seen no reason to regret the Bull by which good Pope Nicholas V. conveyed to Glasgow all the rights and privileges *nostrae civitatis Bononiensis concessis.* We have tried to do credit to the name and example of our foster mother.

The great Teutonic Fatherland—with which we have so many ties of kindred, of friendship, and of intellectual communion, which we hope no rivalry, political or commercial, will ever really disturb, has joined with her Latin sisters in sending us the envoys of her goodwill. From many a province of the noble Austro-Hungarian Empire, and from more remote Russia too, we welcome comrades, our regard for not a few of whom it is easier to express than to pronounce their names. The Russian Empire is a wide word; and it embraces many regions and races; but none of them, I believe, will attract more of our sympathy to-day than the ancient Grand Duchy, where Helsingfors keeps alive, in evil days, the sacred lamp of liberty and learning.

No country in Europe has had, in the past, a closer bond of intellectual, religious, and social fellowship with Scotland, than Holland. In the 17th century the Scottish students of theology and law thronged the classrooms of Leyden and Utrecht; the Scottish fugitives from political oppression sought refuge at Haarlem or the Hague; Scottish authors confided their works to the Dutch printing presses with the same readiness as the Scottish traders entrusted their goods to the merchants of Rotterdam and Amsterdam. The nations were then, and are still, wonderfully alike in many of their best characteristics. We remember with gratitude the old alliance; we rejoice to see in the presence of colleagues from the Low Countries here to-day, a proof that its memory is still fresh on the other side of the North Sea, and stands the test of untoward fortune and of times painful to us and them, which might threaten with estrangement friendships less sincere, rooted in associations less venerable.

When the Pilgrim Fathers crossed the Atlantic, they carried with them not only as concentrated an essence of Protestant religion and political Liberalism as could in those, or indeed in any, days, be carried in one vessel across perilous seas, but also that sturdy respect for knowledge and learning, which leavened the severity of the austere Puritans' views of life, and kept their minds fresh from the stagnation of mere sectarianism. By and by it embodied itself in Harvard, in Yale, in Princeton; and expanding with the expansion of the great American States since their independence was achieved, has planted over the length and breadth of that huge country the colleges and universities, which, in their thorough organisation and their opulence of resource, attest at once the educational science and the generous liberality of its citizens. We welcome them here; and if we have ever thought of our cousins across the Atlantic as more than kin and less than kind, it is wisdom to forget.

We heartily welcome, with them, those of the vast Dominion beside theirs, over which floats the flag of the Royal Republic; and in which, from Quebec to Vancouver, university, college, and school, maintaining education of a high type, show that the traditions of the mother country are moulding the development of the splendid dependency which has, within the last two years, taken such a gallant share in upholding the unity and honour of the Empire.

And in their loyalty and patriotism they have not stood alone. "The long wash of Australasian seas" sweeps shores where great and busy communities of the British race are building up new commonwealths, that are to rule the destinies of regions whose amplitude and whose riches are still only half discovered; yet where, at every great centre of the colonial life, the men of action having cleared the way, the men of thought are influencing the public mind, and adding to the material energy of the pioneer of civilisation the intellectual force and spiritual elevation of the philosopher and the scholar. We hail as partners in a lofty enterprise and rivals in a magnificent career Melbourne, Sydney, and Adelaide, along with Montreal, Kingston, and Toronto.

When this University was founded Scotland knew little of the splendour and the havoc of the East, except, perhaps, dim legends of Prester John, or wondrous tales of Marco Polo. At its 9th Jubilee we give our hand, as fellow-subjects in the empire which has supplanted that of the great Mogul, to teachers and scholars who are engrafting on the ancient civilisation of the East the ideas of Western science and culture—sometimes, no doubt, listened to with "patient, deep disdain," but sometimes, too, with all the eagerness with which a keen mind recognises a fresh revelation, "like some watcher of the skies when a new planet swims into his ken." No fact in this celebration is more singular, more suggestive of varied possibilities, of novel combinations or antagonisms, writing strange characters "upon the forehead of the age to come," than the presence in this assembly of two native professors from the University of Tokyo, in Japan. Nothing is more cheering than the evidence this affords of the wide diffusion of a common knowledge, and an identity of intellectual interests, among all peoples and languages; but nothing is more saddening than the reflection that the earliest, and the most notable, use to which our friends in these distant isles of the sea put the science they had learned amongst us was to fight a great naval battle.

Can we do nothing, with all our learning and science, to humanise the world? Can we not aid Religion in preaching Peace? Surely we move in that direction, at least, if we labour to make our universities, how far soever apart in space, one in the spirit of wisdom and of charity, united in the common effort, not to increase the bounds of knowledge, merely, but to be earnest seekers after and loyal servants of the Truth, to implant sound principles in the minds open to our influence, to hold before them high ideals of duty and conduct, and thus to raise the standard of the national character of our several countries, until men of every race shall recognise and honour their common human brotherhood, and throughout the world there shall be the abundance of peace—*In terra Pax, hominibus bonae voluntatis.*

But I do not intend to moralise, nor do I wish to delay longer your discharge of the graceful duty entrusted to you

by so many reverend universities, colleges, and schools, by so many learned societies and associations, famous in the world of science, art, and letters,—the duty of conveying to us their congratulations on this auspicious day. In the name of the University, its Senate, its Court, its graduates, its students, I thank you for the goodwill you have shown, and the honour you have done us.

In return, what can we say or do? Silver and gold have we none, but what we have we, with a full heart, can give you—our kindliest reception; our hospitablest entertainment; our friendliest intercourse—in a word, a Scottish welcome—*Felix, faustumque sit.*

On the applause which followed the conclusion of the address subsiding,

The Vice-Chancellor called upon the Clerk of the Senate to present the delegates.

Professor Stewart stated that they had placed first in order the delegates from foreign countries, then those from the colonies and British dependencies, and in the third place those from Great Britain, and each section would be presented in alphabetical order, the alphabet being no respecter of persons.

The delegates were then introduced in accordance with this arrangement, the national anthem of the respective countries being sung by the choir, or played on the organ, as they advanced to the platform. The principal representative in each case presented the address to the Vice-Chancellor, nearly the whole of the distinguished visitors adding a few words of congratulation, occasionally in the language of their nationality, or in French, but mostly in English. These brief addresses were scarcely audible beyond the platform, but in one or two instances the speakers were distinctly heard throughout the hall. Professor Gregory, of the University of Leipzig, was the first to impart variety to the proceedings in this way. Speaking in a good round voice, he said that the slightly older university wished the younger sister great joy and happiness on this festal day. They wished Glasgow many such jubilees, ever advancing in strength and fame, and they

hoped the University of Glasgow would ever retain friendship for the University of Leipzic.

Professor Klement A. Timiriazeff, from the University of Moscow, subsequently said the oldest Russian University saluted the ancient University of Glasgow. In olden times, when universities first arose, they served as a closer connection between nations. Now they should aim to introduce a brotherly alliance between people, for the benefit of science and for the good of all mankind. Glasgow University had contributed rich gifts to the treasury of human knowledge. The age of steam remembered that it was thanks to the Senate of Glasgow University that James Watt was able to realise his great achievement. The age of electricity would transmit to a distant future the name of Lord Kelvin, whom Moscow University was proud to count among its honorary members. The age of Darwin brought them to the work of Hunter, one of the pioneers of anatomical research. The age of Pasteur—they were all aware of the part played in the evolution of contemporary medical science by Joseph Lister. The age, which brought to the front social and economic questions, always admitted that this branch of science took its origin from the immortal author of the *Wealth of Nations*, Adam Smith. Finally, who did not know the part played in the history of human thought by the Scottish school of philosophy in which the name of Thomas Reid stood pre-eminent? These and many other services of Glasgow University merited general acknowledgment, and they all fondly cherished the hope that this illustrious seat of Scottish learning would flourish for many ages to come for the good of its native land, and of all humanity.

Professor Kronecker said that, journeying from the home of Albrecht von Haller, he had the honour to hand over the address from the University of Berne. He recalled the connection of Haller, an eminent physician of Berne, with English and Scotch physicians, and said that he himself was happy in this city, where he was received into the British Association twenty-five years ago, to draw closer the ties of acquaintance with the distinguished savants of this advanced civilisation.

Principal Oliver Lodge, Birmingham University, conveyed salutations and homage from the youngest British University. "As you felt to Bologna," he said, "449 years ago, we feel to you to-day".

Sir Henry E. Roscoe said the University of London desires to offer its homage to its elder sister, and expresses the hope that in the future centuries, as in the past, its glories would be great.

For the later events of the day the scene was changed. The "At Home" in the handsome rooms and pretty grounds of Queen Margaret's, under Miss Galloway's presidency, was a bright and sociable function, gay with music and conversation.

The Gaudeamus of the students of the sterner sex, held in the "Union," was vocal with many voices, and veiled with much fragrant smoke; but, according to the *Athenaeum*, the "*verve* of the audience was delightful for any speaker, and enough to make a dumb man eloquent." During the course of the evening a visit was paid by a party from the Principal's house, including Lord Strathcona, Lord Reay, Lord Balfour of Burleigh, the Bishop of Ripon, and Count Goblet d'Alviella, who delighted the students with their short but sparkling and *apropos* speeches, and the heartiness with which they entered into the spirit of the entertainment.

THURSDAY, 13th JUNE.

THE functions of this day were, perhaps, the most interesting of the whole festival. First came the Orations, in the Bute Hall, on James Watt, delivered by Lord Kelvin, and on Adam Smith, by Professor Smart. It had originally been arranged that the latter should be given by a former Lord Rector—the Right Hon. A. J. Balfour—but finding himself absolutely prevented by his position as leader of the House of Commons, Mr. Balfour resigned the duty to Dr. Smart, who, as Professor of Political Economy, most appropriately and ably filled his place. "I am very sorry," wrote Mr. Balfour, "I need hardly say, to be deprived of taking part in so interesting a ceremony."

At 10 a.m. a large and distinguished company met in the Bute Hall to hear the orations.

Lord Kelvin spoke as follows on :

JAMES WATT.

THE name of James Watt is famous throughout the whole world, in every part of which his great work has conferred benefits on mankind in continually increasing volume up to the present day.

It is fitting that the University of Glasgow, in this celebration of its ninth jubilee, should recollect with pride the privilege it happily exercised a hundred and forty-five

years ago of lending a helping hand, and extending the beneficent solace of personal friendly intercourse of professors of mathematics, philosophy, and classical literature, and giving a workshop within its walls, to a young man of no university education, struggling to commence earning a livelihood as a mathematical-instrument-maker, in whom they discovered something of the genius, destined for such great things in future.

James Watt's paternal grandfather, Thomas Watt, was the son of an Aberdeenshire farmer, who died in battle in one of the wars of Montrose early in the seventeenth century. As a poor orphan, he was rescued from destitution by benevolent relatives of whom no records are known. He settled in Carsedyke as a teacher of navigation, or "Professor of the Mathematicks," as he was styled on his tombstone.

Carsedyke, on the site of the present Port-Glasgow, was a borough of barony under a charter of Charles II. (1669), a mile or two from Greenock, to which a charter had been granted by Charles I. thirty-four years earlier (1635). The two boroughs, one hundred years after Thomas Watt's settlement in Carsedyke, had together a population reckoned at 4100. But as early as 1700 they possessed between them four ships and two barques, besides probably a somewhat large fleet of open or half-decked fishing-boats, then a nursery of excellent seamen soon to be employed in the rapidly growing over-sea trade of Glasgow, Port-Glasgow, and Greenock. It is difficult to imagine how Thomas Watt could have supported himself on a professorship of mathematics in the latter part of the seventeenth century, or even in teaching mathematical navigation; and it seems probable that he may have taken active part in the creation of the four ships and two barques, furnished with which Clyde navigation entered on the eighteenth century. However this may have been, he certainly was a public-spirited man, working for the good of his fellow-citizens as elder of the parish and presbytery, and chief magistrate of the borough of Greenock, anxiously caring for the minds and morals of the little community, and applying his capacity for scientific

engineering " to repairing the church, widening the bridge, and "trying by mathematical standards the weights and measures "used in the borough."[1] He died at the good old age of ninety-five (or ninety-two according to another reckoning judged less probable by Muirhead) leaving two sons, John and James, who both inherited from him mathematical and engineering capacity. The elder practised as a surveyor in Glasgow, and died in 1737 at the age of fifty, leaving behind him a survey-chart, made in 1734, of the Clyde River and Firth from Rutherglen above Glasgow, to Loch Ryan and the coast of Ireland, and including the islands of Islay, Colonsay, and part of Mull; which was engraved and published twenty-five years later (1759) by his brother James assisted by *his* two sons, James and John. Of these the younger brother, John, died on board one of his father's ships on a voyage to America two years later. The elder brother, James, was *the* James Watt; and was twenty-four years old, occupied in his workshop in the University of Glasgow, when he assisted his father and brother and uncle in the production of the now celebrated chart.

James Watt's father was an energetic, practical man. After serving an apprenticeship to a shipbuilder in Carsedyke, he settled at Greenock at the age of thirty, and lived a busy life of work as a shipwright; a ship-chandler supplying vessels with nautical apparatus, stores, and instruments; a builder; and a merchant. For upwards of twenty years he was a member of the Town Council of Greenock, and, during great part of that time, its Treasurer; a magistrate; and always a zealous and enlightened promoter of the improvements of the town of which he was an inhabitant. Above all, it is recorded by one who knew him well, that " he "was an intelligent, upright, and benevolent man."

About 1729 he married Agnes Muirhead, " a fine-looking " woman, with pleasing, graceful manners, a cultivated mind, " an excellent understanding, and an equal cheerful temper ". . . descended from an old Scottish family of Muirheads " settled in the shire of Clydesdale time immemorial, and

[1] This and all other statements distinguished by quotation marks are from Muirhead's Life of James Watt except when some other origin is indicated.

"certainly before the reign of David the First of Scotland, "anno 1120." Six children were born, of whom the three eldest died in early childhood. The fourth was the great James Watt, and the fifth was his brother John, who died in 1762.

James Watt was very delicate as a child and unable to take much part in the healthy sports and school work of other boys of his age, and early, like many other men of genius, manifested a very contemplative disposition. "His "parents were indulgent, yet judicious in their kindness; and "their child was docile, grateful, and affectionate. From an "early age he was remarkable for manly spirit, a retentive "memory, and strict adherence to truth; he might be wilful "or wayward, but never was insincere. He received from his "mother his first lessons in reading, his father taught him "writing and arithmetic. Owing to variable health, his "attendance on public classes at Greenock was irregular; his "parents were proud of his talents; and encouraged him to "prosecute his studies at home. His father gave him a small "set of carpenter's tools, and one of James' favourite amuse-"ments was to take his little toys to pieces, reconstruct them, "and invent new playthings."

From a paper entitled "Memoranda of the early years of "Mr. Watt, by his cousin, Mrs. Marion Campbell," his biographer, Mr. Muirhead, quotes the following interesting statement, "That his powers of imagination and composi-"tion were early displayed, appears from the following "incident. He was not fourteen when his mother brought "him to Glasgow to visit a friend; his brother John "accompanied them; on Mrs. Watt's return to Glasgow "some weeks after, her friend said, 'You must take your "'son James home; I cannot stand the state of excitement "'he keeps me in; I am worn out with want of sleep; "'every evening before ten o'clock, our usual hour of retiring "'to rest, he contrives to engage me in conversation, then "'begins some striking tale, and, whether humorous or "'pathetic, the interest is so overpowering, that all the family "'listen to him with breathless attention; hour after hour "'strikes unheeded; in vain his brother John scolds him and

"'pulls him by the arm, Come to bed, James; you are invent-
"'ing story after story to keep us up with you till after
"'midnight, because you love company, and your severe fits of
"'toothache prevent your sleeping at an earlier hour.'

"Sitting one evening with his aunt, Mrs. Muirhead, at the "tea-table, she said: 'James Watt, I never saw such an idle boy;
"'take a book or employ yourself usefully; for the last hour
"'you have not spoken one word, but taken off the lid of that
"'kettle and put it on again, holding now a cup and now
"'a silver spoon over the steam, watching how it rises from
"'the spout, and catching and connecting the drops of hot
"'water. Are you not ashamed of spending your time in this
"'way?'

"It appears that when thus blamed for idleness, his active "mind was employed in investigating the properties of steam; "he was then fifteen; and once in conversation he informed "me that before he was that age he had read twice with "great attention 'S'Gravesande's *Elements of Natural "Philosophy*,' adding that it was the first book on that "subject put into his hands and that he still thought it one "of the best. When health permitted, his young ardent "mind was constantly occupied, not with one but many "pursuits. Every new acquisition in science, languages, or "general literature, seemed made without an effort. While "under his father's roof, he went on with various chemical "experiments, repeating them again and again until satisfied "of their accuracy from his own observations. He had made "for himself a small electrical machine, and sometimes startled "his young friends by giving them sudden shocks from it."

After the age of thirteen he was often in Glasgow with his uncle, Mr. Muirhead, taking opportunity to learn something of anatomy and chemistry. While at home with his parents he attained to considerable proficiency in Latin, and learned something of Greek, at the grammar school of Greenock; but he studied mathematics with much greater zest under Mr. John Marr, a relative of his family. He also got great benefit in seeing his father's business affairs, and so making the acquaintance of optical instruments of various kinds for astronomy and navigation, and learning the highly scientific

and interesting mechanics of sailing ships. He had a small forge set up for his own use, at which he worked in making and repairing instruments of all kinds. Thus while his delicate health prevented him from being an athlete with other boys of his age, he early became a skilled mechanic; and a skilled mechanic he remained, taking pleasure in the exercise of his handicraft, to the very end of his life.

In June, 1754, Watt came to live in Glasgow under care of relations of his mother; and was introduced by one of them, Prof. Geo. Muirhead, to Prof. James Moore (his colleague in the editorship of the magnificent Glasgow edition of Homer in four folio volumes) and to Adam Smith, Robert Simson, and other professors in the University, whose friendship he enjoyed as long as they lived. Looking forward to earning his livelihood as a mathematical-instrument-maker, Watt was advised by the professor of natural philosophy, Dr. Dick, to go to London for better instruction in the art than he could get in Glasgow. Accordingly, on the 7th June, 1755, young Watt rode out of Glasgow in charge of his old mathematical master, John Marr, who was going south to act as naval instructor on board the *Hampton Court*, a seventy-gun ship then lying at anchor in the Thames. They travelled by Coldstream, Newcastle, Durham, York, Doncaster, Newark, and Biggleswade, the whole way to London on horseback in twelve days, on two of which not more than a Sabbath day's journey was performed.

Touching letters to young Watt's father from himself and Mr. Marr showed the great difficulty they had to find in London a competent instrument-maker who would consent to give the required instruction, and the great anxiety of the son to avoid being a burden on his father, whose means had been seriously straitened through want of prosperity of his Greenock business. However, with the assistance of Mr. Marr and the good offices of Dr. Dick, an arrangement was at last happily concluded with a very good man, John Morgan, mathematical-instrument-maker in Finch Lane, Cornhill,—young Watt to receive a year's instruction in instrument-making, for which he was in return to pay

twenty guineas and give his labour for the year. In Muirhead's book we have an interesting account of the young pupil's work and life during the year. He lodged under the roof of his master, but had to find his own food, which cost him eight shillings a week, "lower than that he could not "reduce it." To diminish the expense to his father, he earned some money on his own account by rising early and gaining something by work done before the shop-time. At night he was, as he wrote to his father, "thankful enough "to go to bed with his body wearied and his hand shaking "from ten hours' hard work." "We work to nine o'clock "every night, except Saturdays."

In his letters he regrets the charge his living must be to his father, and says he is striving all he can to improve himself that he may be sooner able to assist him and to assure his own maintenance.

Of young Watt's time in London Muirhead tells us, "An "unexpected danger at that time hung over his destiny, "which might have cut short, at least for a season, his "projects of further improvement in natural science and "postponed *sine die* his return to Glasgow College, with all its "interesting consequences. This sword of Damocles was the "chance of being impressed for the navy. He writes in the "spring of 1756 that he avoids 'a very hot press just now "'by seldom going out.' And on a later day he adds 'they "'now press anybody they can get, landsmen as well as "'seamen, except it be in the liberties of the city, where they "'are obliged to carry them before my Lord Mayor first, and "'unless one be either a 'prentice or a creditable tradesman, "'there is scarce any getting off again. And if I was carried "'before my Lord Mayor, I durst not avow that I wrought in "'the city, it being against their laws for any unfreeman to "'work, even as a journeyman, within the Liberties.'"

Our country is happier and freer now than it was a hundred and fifty years ago. Volunteer sailors and soldiers compete enthusiastically for the honour of fighting their country's battles. Every employer is free by law to give work as he pleases; and every worker, old or young, is free by law to take work where he can find it.

Watt might probably have got good work in London after his year of pupilage had he decided to try for it. But the hard struggle had told upon his health. With violent rheumatic pain and "weariness all over his body" he found himself compelled to seek the benefit he expected to derive from the "ride homeward" and from his native air. So at the end of August, 1756, he took leave of London and of Mr. Morgan, who, dying in 1758, was not destined to witness the future success of his pupil. But before leaving Watt made a small investment of twenty guineas in "half "a hundred additional tools" and the materials necessary for "a great many more that he knew he must make "himself."

Soon after his arrival in Glasgow, an occasion for good employment of that little stock-in-trade came to him through the good offices of his friend the Professor of Natural Philosophy, Dr. Dick, who asked him to assist in unpacking a valuable collection of astronomical instruments just arrived from Jamaica. These instruments had been constructed at great cost by the best makers in London for their late proprietor, Mr. Alex. Macfarlane, a merchant and amateur astronomer, long resident in Jamaica, who died in 1755, having bequeathed the contents of his observatory to the University in which he had received his education. I doubt whether any of you here present may remember the old Macfarlane Observatory in the upper eastern part of the college green of the old Glasgow College in High Street. I remember it well, and remember being taught to take transits of the sun and stars about 1838 or 1839 on Alex. Macfarlane's own old transit instrument by my father's colleague, Dr. Nicol, afterwards my own colleague, and the father of my late colleague, Prof. John Nicol. That transit instrument and, I believe, other instruments from Mr. Macfarlane's old observatory in Jamaica are still doing good work for the University of Glasgow, in its present observatory on Dowanhill. A minute of a University meeting held on the 26th October, 1756, regarding them is interesting—the Professor of Greek and the Professor of Natural Philosophy appointed as a deputation to call on the youthful mechanic

James Watt! "Several of the instruments from Jamaica having "suffered by the sea-air, especially those of iron, Mr. Watt, "who is well skilled in what relates to the cleaning and pre- "serving of them, being accidentally in town, Mr. Moor and "Mr. Dick are appointed to desire him to stay some time in "town to clean them, and put them in the best order for "preserving them from being spoiled." A record of a few weeks later tells us that "a precept was signed to pay "James Watt five pounds sterling for cleaning and refitting "the instruments lately come from Jamaica." This was probably the first money he earned since the termination of his pupilage.

He was then within a few weeks of twenty-one, and wished to commence as soon as possible the regular exercise of the trade for which he had been preparing. But he was not allowed by city and trade rules to work as an instrument-maker in the City of Glasgow, because he was neither the son of a burgess, nor married to the daughter of a burgess, nor a passed apprentice to any trade. He was forbidden to set up even a humble workshop with himself as solitary tenant within the limits of the borough. The University is now happily within the borough of Glasgow. Happily it was not in the borough in 1757, and it was able to give James Watt protection from tyrannical usages outside its bounds. By midsummer of that year he received permission to occupy an apartment and open a shop within the precincts of the College, and to use the designation of "Mathematical-instrument-maker to the University." In the autumn of the same year the foundation-stone of an astronomical observatory, to receive the collection of the Jamaica instruments which he had refitted and set up, and to be called the Macfarlane Observatory, was laid. Probably the completion of that undertaking gave some of the earliest employment to Watt in his University workshop.

In work for outside the University he seems early to have made some progress, as we may judge from the following interesting letter to his father of date 15th September, 1758: "As I have now had a year's trial here, "I am able to form a judgment of what may be made of this

"business, and find that unless it be the Hadley's instru-
"ments, there is little to be got by it, as at most other jobs I
"am obliged to do the most of them myself; and as it is
"impossible for one person to be expert at everything, they
"very often cost me more time than they should do. How-
"ever, if there could be a ready sale procured for Hadley's
"quadrants, I could do very well, as I and one lad can finish
"three in a week easily; and selling them at 28s. 6d., which
"is vastly below what they were ever sold at before, I have
"40s. clear on the three. So it will be absolutely necessary
"that I take a trip to Liverpool to look for customers, and
"hope that upon the profits of what I shall be able to sell
"there, I can go to London in the spring, when I make no
"doubt of selling more than I can get made; all which I
"want your advice on. And if that does not succeed I must
"fall into some other way of business, as this will not do in
"its present situation." The sale, however, of the profitable Hadley's quadrants in Glasgow appears to have increased so much, as to have rendered the proposed speculative trading voyage to Liverpool unnecessary.

A year later, it is interesting to find an advertisement (dated October 22, 1759) of an engraved map of the Firth of Clyde "to be sold by James Watt at his shop "in the College of Glasgow." This was the final outcome of the survey made two years before he was born by his uncle, John Watt, of which I have already told you.

While still continuing to make mathematical and nautical instruments in his University workship, we find him also making organs, guitars, flutes, and violins, and making or repairing harps, guitars, mandolines, viol-de-gambas, and double-basses, in 1761 and 1762. Of this excursion from mere mathematical-instrument-making Robison, then a post-graduate theological student (afterwards successor of Black as Lecturer on Chemistry) in the University of Glasgow, wrote, "We imagined that Mr. Watt could do anything; "and, though we all knew that he did not know one musical "note from another, he was asked if he could build this organ "(an organ wanted for a Masonic Lodge in Glasgow). He "said 'Yes,' but he began by building a very small one for

"his friend, Dr. Black, which is now in my possession. In "doing this a thousand things occurred to him which no "organ-builder ever dreamed of—nice indicators of the "strength of the blast, regulators of it, etc. He then began "to study the philosophical theory of music. Fortunately for "me, no book was at hand but the most refined of all, and "the only one that can be said to contain any theory at all— "Smith's *Harmonics*. Before Mr. Watt had half-finished "this organ, he and I were completely masters of that most "refined and beautiful theory of the beats of imperfect con- "sonances. He found that by these beats it would be "possible for him, totally ignorant of music, to tune this "organ according to any system of temperament; and he did "so, to the delight and astonishment of our best performers."

While thus interestedly occupied in the fascinating study of musical instruments, Watt entered on his life-long work on steam-power. In a note by himself appended to Professor Robison's dissertation on steam-engines, he says, "My attention was first directed in the year 1759 to the "subject of steam-engines, by the late Dr. Robison, then a "student in the University of Glasgow, and nearly of my "own age. He at that time threw out an idea of applying "the power of the steam-engine to the moving of wheel- "carriages, and to other purposes, but the scheme was not "matured, and was soon abandoned on his going abroad.

"About the year 1761, or 1762, I tried some experi- "ments on the force of steam in a Papin's digester, and "formed a species of steam-engine by fixing upon it a syringe, "one-third of an inch diameter, with a solid piston, and "furnished also with a cock to admit the steam from the "digester, or shut it off at pleasure, as well as to open a "communication from the inside of the syringe to the open "air, by which the steam contained in the syringe might "escape. When the communication between the digester "and syringe was opened, the steam entered the syringe, and "by its action on the piston raised a considerable weight "(15 lbs.) with which it was loaded," which shows that he had steam at 170 lbs. per square inch to deal with. "When this was raised as high as was thought proper, the

"communication with the digester was shut, and communi-
"cation with the atmosphere opened, the steam then made
"its escape, and the weight descended. The operations were
"repeated, and, though in this experiment the cock was
"turned by hand, it was easy to see how it could be done by
"the machine itself, and to make it work with perfect
"regularity. But I soon relinquished the idea of constructing
"an engine upon this principle, from being sensible it would
"be liable to some of the objections against Savery's engine,
"viz., the danger of bursting the boiler, and the difficulty of
"making the joints tight, and also that a great part of the
"power of the steam would be lost, because no vacuum was
"formed to assist the descent of the piston. I described this
"engine in the fourth article of the specification of my
"patent of 1769, and again in the specification of another
"patent in the year 1784, together with a mode of applying
"it to the moving of wheel-carriages."

Precisely that single-acting, high-pressure, syringe-engine, made and experimented on by James Watt one hundred and forty years ago in his Glasgow College workshop, now in 1901, with the addition of a surface-condenser cooled by air to receive the waste-steam, and a pump to return the water thence to the boiler, constitutes the common road motor, which, in the opinion of many good judges, is the most successful of all the different motors which have been made and tried within the last few years. Without a condenser, Watt's high-pressure, single-acting engine of 1761 only needs the cylinder-cover with piston-rod passing steam-tight through it (as introduced by Watt himself in subsequent developments), and the valves proper for admitting steam on both sides of the piston and for working expansively, to make it the very engine which, during the whole of the past century, has done practically all the steam work of the world, and is doing it still, except on the sea or lakes or rivers, where there is plenty of condensing water. Even the double and triple and quadruple expansion engines, by which the highest modern economy for power and steam engines has been obtained, are splendid mechanical developments of the principle of expansion,

discovered and published by Watt, and used, though to a comparatively limited extent, in his own engines. One thing James Watt did not know—the thermodynamic value of high temperature without high pressure. This was absolutely unknown, and nothing towards it was thought of by engineers or philosophers, till it was discovered by Sadi Carnot and published in his "Puissance Motrice du Feu" in 1824. Thus James Watt did not see merit in superheated steam. Its use, introduced thirty years ago by John Elder, and only largely coming into practice within these last two or three years, gives the finishing touch of Science to obtain the highest economy in the modern steam engine.

With all the essential ideas of the finally successful engine in his mind, a long and arduous struggle to realise them for practical usefulness lay before Watt. He soon relinquished the idea of constructing a high-pressure, non-condensing engine, and, by being employed to repair a model of Newcomen's engine a year or two later, he was brought back to steam power as developed in Newcomen's engine, which essentially involved condensation. Having been for fifty-three years official guardian of the model with which Watt's practical work on the steam-engine thus commenced, I may be pardoned for asking your sympathy in recalling some trivial details of its history. In the records of the University of Glasgow we find two minutes, with six years interval:

"University meeting, 25th June, 1760. Mr. Anderson "is allowed to lay out a sum not exceeding two pounds "sterling to recover the steam-engine from Mr. Sisson, instru-"ment-maker at London."

"University meeting, 10th June, 1766. An account "was given in by James Watt for repairing and altering "the steam-engine with copper pipes and cisterns, amounting "to £5 11s. The said machine being the property of the "College, and having been in such a situation that it did "not answer the end for which it was made, the Principal "is appointed to grant a precept for payment of the said "account, which is to be stated upon the fund for buying "instruments to the College."

Sisson was a highly-skilled maker of astronomical instruments in London. The great French astronomer, Delambre, tells us that he made a mural quadrant for the Greenwich Observatory, and another for the private observatory of the King of England, and adds the remark: "Thus Sisson "maintained the honour and the pre-eminence of England." Sisson soutint à cet égard l'honneur *et la pre-eminence* de l'Angleterre.[1] Yet it seems that he did not succeed in making the Newcomen model work.

Mr. John Anderson was my official great-great-grandfather as Professor of Natural Philosophy in the University of Glasgow, having been appointed to the Chair on the death, in 1759, of Watt's appreciative and devoted friend, Dr. Dick, and having been himself for five years previously Professor of Hebrew in the University. He occupied the Chair for thirty-nine years; and unhappily, somewhat out of temper with the College or University in the later years of his encumbency, made a will founding a rival institution, to be called Anderson's University, with a condition that in it not a lecturer, nor teacher, nor a porter, not even an instrument-maker, was to be employed who had worked for the old University. I don't believe this condition of Anderson's will was ever fulfilled. The Andersonian Institution has, from its foundation to the present day, worked in perfect harmony with the University—perhaps even more perfect harmony than if it had been founded as an officially incorporated College of the University.

Watt has told us that it was in the winter of 1763-4 that he was engaged repairing the model, and we see that his account for the work done was not given in till the 10th June, 1766; so we may fairly conclude that he had it in hand for more than two years, and made a great many experiments with it. In the course of these experiments he noticed with surprise the large quantity of water required to condense the steam—five or six times as much as the water primarily evaporated. In conference with Joseph Black, lecturer on chemistry in Glasgow College, it was found that this was a splendid and

[1] Delambre, *Histoire de l'Astronomie au dixhuitième Siècle*, p. 237, 1827.

previously unthought-of example of the doctrine of latent heat, then fresh from Black's original discovery of it. With very primitive and imperfect instrumental appliances, Watt measured the amount of the latent heat of condensation of steam at different temperatures and pressures, and found for its variations a roughly approximate law. When, eighty-one years later, a student under Regnault in his laboratory in the College of France, I used to hear him speaking of "la loi de Watt," and telling us that it was the nearest approach to the truth which he found among the results of previous experimenters, I felt some pride in thinking that the experiments on which it was founded had been made in Glasgow College.

In working on the Newcomen model, Watt found that it essentially involved great waste of heat by performing the condensation in the cylinder by the injection of cold water, which not only cooled the steam but the whole metal of the cylinder. To remedy this fault, he invented the separate condenser, and established the principle of working with the cylinder always hot and dry. Thus during the five years from 1761-6 Watt had worked out all the principles and invented all that was essential in the details for realising them in the most perfect steam-engines of the present day.

In 1763 Watt ceased to live in his College rooms, and took a small house in the town; and in 1764 he married a cousin of his own, Margaret Miller, who for nine years did everything possible to support him and to brighten his life through the severe trials which were before him in his great work, rendered harder by continued ill-health. Of this time of his life we find an interesting statement in Miss Campbell's Memoranda: "Even his powerful mind sank occasionally "into misanthropic gloom, from the pressure of long-continued "nervous headaches and repeated disappointments in his hopes "of success in life. Mrs. Watt, from her sweetness of temper "and lively, cheerful disposition, had power to win him from "every wayward fancy—to rouse and animate him to active "exertions. She drew out all his gentle virtues, his native "benevolence, and warm affections."

I wish I could tell you of his early trials and failures to realise the steam-engine for practical purposes with the co-operation and assistance of his enthusiastic friend, Dr. Roebuck, the founder of the Carron Ironworks. In 1770, deeply depressed by hope deferred and almost constant bad health, he writes: "I am resolved, unless those things I have "brought to some perfection reward me for the time and "money I have lost on them, if I can resist it, to invent no "more. Indeed, I am not near so capable as I was once. I "find that I am not the same person I was four years ago, "when I invented the fire-engine, and foresaw, even before I "made a model, almost every circumstance that has since "occurred. I was at that time spurred on by the alluring "hope of placing myself above want, without being obliged "to have much dealing with mankind, to whom I have always "been a dupe. The necessary experience in great measure "was wanting; in acquiring it I have met with many dis-"appointments. I must have sunk under the burthen of "them if I had not been supported by the friendship of "Dr. Roebuck. I have now brought the engine near a con-"clusion, yet I am not in idea nearer that rest I wished for "than I was four years ago. However, I am resolved to do "all I can to carry on this business, and if that does not "thrive with me, I will lay aside the burthen I cannot carry."

With a family of three children the necessity to earn money gradually led him, as his biographer Muirhead tells us, "more frequently to forsake the solitary vigils of his "workshop in the city for the active labours of his profession "of a civil engineer." 'Somehow or other,' as he modestly expresses it—or, as we cannot doubt, from his ability and integrity having now become well known—"the magistrates "of Glasgow had for two or three years past employed him in "various engineering works of importance." In 1767 he was employed, in conjunction with Mr. Robert Mackell, to make a survey for a small canal intended to unite the rivers Forth and Clyde, by a line known as the Loch Lomond passage. He attended Parliament on the part of the subscribers to this scheme, and it appears from some of his letters to

Mrs. Watt that he was not much enamoured of the public life of which he thus obtained a glimpse; "close confined "attending this confounded Committee of Parliament," he says, "I think I shall not long to have anything to do with "the House of Commons again: I never saw so many wrong-"headed people on all sides gathered together."

It seems that on his journey from London on that occasion he made the acquaintance of Dr. Erasmus Darwin (grandfather of *the* Charles Darwin), who writes to him from Lichfield, in August, 1767: "Now, my dear new friend, I "first hope you are well and less hypochondriacal, and that "Mrs. Watt and your child are well. The plan of your steam "improvements I have religiously kept secret, but begin myself "to see some difficulties in your execution which did not strike "me when you were here. I have got another and another "new hobby-horse since I saw you. I wish the Lord would "send you to pass a week with me, and Mrs. Watt along with "you—a week, a month, a year. You promised to send me "an instrument to draw landscapes with. If you ever move "your place of residence for any long time from Glasgow, "pray acquaint me.—Adieu. Your friend, E. Darwin." The dear new friend did leave Glasgow seven years later to live in Darwin's neighbourhood, and formed with him "the Lunar "Society," an association of kindred spirits all devoted to the pursuit of natural knowledge and filled with mutual esteem and affection—Erasmus Darwin, Watt, Boulton Dr. Small, Wedgwood, Day (author of the delightful *Sandford and Merton* of our childhood), Dr. Withering, Keir; Galton, Edgeworth, and Dr. Priestley. The Lunar Society dined together every month at two o'clock on the day of full moon, in order to have the benefit of its light in returning to their homes at night! Our scientific and friendly symposiums, alas! are shorter in these degenerate days.

In 1769 he made a survey and estimate for a navigable canal from the collieries at Monkland in Lanarkshire to the City of Glasgow, which, as Muirhead tells us, "was carried "out under his own directions and superintendence, to the "great advantage of the public as well as of the parties "to the undertaking." His civil engineering work came to a

melancholy close in 1773 while he was engaged in a survey of the Caledonian Canal. In the autumn of that year he was suddenly summoned home by the intelligence of the dangerous illness of his wife, but arrived too late. She had died after having given birth to a still-born child. They had had four children, of whom two died in infancy, one daughter, who married in Glasgow but died early, and a son, James Watt, of Aston Hall, who long survived his father, and died unmarried in 1848.

The death of his first wife in Glasgow was the turning point in Watt's life. For thirty-eight years, except the one year of trade apprenticeship in London, his home had been in Scotland. During seventeen happy years in the University and City of Glasgow, chequered with much of painfully anxious care, he had laid a secure foundation for future ease and prosperity. He had emerged from the feeble and unstable health of his early life. He had taken in 1769 his first patent for engines realising steam-power, for which a twenty-five years' extension from 1775 was afterwards granted by Act of Parliament. He had entered into partnership with Mr. Boulton. He had in April, 1773, removed to Soho, Birmingham, his first practical steam-engine from Kinneil, a highland glen near Carron with sufficient water supply for condensation, where, after primary trials, it had been lying useless for some years perishing from long exposure to the weather. In terms of his partnership with Boulton he was to make his home in the neighbourhood of Soho, but this was not done before the death of his wife. A few months later he left Scotland, and thenceforward to the end of his life his home was in England.

I wish we had an hour to devote in imagination to James Watt in England for the remaining forty-five years of a beautiful and hard-working and useful and happy life. All I can say just now is—read of it in Muirhead, and in Arago's Éloge of Watt.

Greenock and the University and City of Glasgow never lost James Watt though he ceased to live among them in 1774. The University conferred the honorary degree of

LL.D. upon him in 1806. In 1808 he founded the Watt prize in Glasgow College by a letter to Dr. Wm. Taylor, the Principal of the University, in which he said: "Entertaining "a due sense of the many favours conferred upon me by the "University of Glasgow, I wish to leave them some memorial "of my gratitude, and, at the same time, to excite a spirit of "inquiry and exertion among the students of Natural Philo- "sophy and Chemistry attending the College, which appears "to me the more useful, as the very existence of Britain, as a "nation, seems to me in great measure to depend upon her "exertions in science and in the arts." In 1816 he made a donation to the town of Greenock for the purchase of scientific books, stating as his intention "to form the "beginning of a scientific library for the instruction of the "youth of Greenock, in the hope of prompting others to add "to it, and of rendering his townsmen as eminent for their "knowledge as they are for their spirit of enterprise."

Watt became

Fellow of the Royal Society of Edinburgh in	1784.
Fellow of the Royal Society of London in -	1785.
Member of the "Société Batave" in - -	1787.
Correspondent of the French Academy of Sciences in - - - - -	1808.
One of the eight "Associés Étrangers" of the French Academy of Sciences in - -	1814.

I do not know if any University in the world ever had a tradesman's workshop and saleshop within its walls even for the making and selling of mathematical instruments prior to 1757. But whether the University of Glasgow is or is not unique in its beneficent infraction of usage in this respect, I believe it is certainly unique in being the first British University, perhaps the first University in the world, to have an engineering school and professorship of engineering (commenced under Prof. Lewis Gordon about 1843).

Glasgow was, I believe, certainly the first University to have a chemical teaching laboratory for students, started by its first professor of chemistry, Thomas Thomson, some time between 1818 and 1830. Glasgow was, I believe, also certainly the first University to have a physical laboratory

for the exercise and instruction of students in experimental work, which grew up with very imperfect appliances between 1846 and 1856. Pioneer though it was in those three departments, it has been outstripped within the last ten or fifteen years by other Universities and Colleges in the elaborate buildings and instruments now needed to work them effectively for the increase of knowledge by experimental research and the practical instruction of students. But there is no lagging to-day in the resolution to improve to the utmost in affairs of practical importance; and we almost see attainment of the further aspiration to excel over all others in the James Watt Engineering Laboratory of the University of Glasgow, to be ready for work before the expected meeting of the Engineering Congress next September.

And now, through the magnificently generous kindness of Mr. Andrew Carnegie to the people among whom he has made for himself a summer home in the land of his birth, all the four Scottish Universities can look forward to a largely increased power of benefiting the world by scientific research, and by extending their teaching to young people chosen from every class of society as likely to be made better, and happier, and more useful to our country by University Education.

On the conclusion of Lord Kelvin's address, Professor Smart delivered his upon

ADAM SMITH.

EXACTLY a century and a half ago, as this year falls, Adam Smith, then a young man of twenty-seven, became a professor in this University. In the duties of his chair he spent thirteen years. For two and a half years thereafter he lived in France. The next ten were taken up in writing his book. These, I think, are the three formative periods of the *Wealth of Nations*.

Glasgow in these days was a quiet, somewhat sleepy, county town of 23,000 inhabitants, famous for its beauty. It was little more than one long street, running from Saltmarket to the Bell o' the Brae, most of its buildings clustering round the Cross. East of High Street were country lanes; west of Candleriggs a few gardens, and then green fields. The cowherd sounded his horn through the streets each morning to call the cattle to the romantic slopes of the Cowcaddens. The Broomielaw was covered with broom bushes, and fishers drew their nets for salmon opposite Stockwell. It was a city without factories, for James Watt was but newly sheltered under the College roof. Its manufacturers were, literally, people who wrought by hand. The employers of the day were men who owned machines and material, and hired them out to people working in their own cottages. Adam Smith mentions, as the "three capital improvements" in the woollen manufacture, the spinning wheel, which had supplanted the rock and the spindle; the yarn-winding machine; and the fulling mill for thickening cloth instead of treading it in water. Its ships—barques of a few hundred tons burden—sailed from Port-Glasgow. Its rich men were merchants bringing in colonial tobacco and sending it out again over Europe.

This was the little world on which Adam Smith looked out from his "manse" in High Street; and the wonder is that, on the analysis of it, he should have written so much that is true and fresh to-day.

Perhaps, however, it is to such an environment that we owe the economist. When one considers how many able men had looked out on the same world without seeing it, their eyes holden by the more striking and superficial phenomena of war and politics, we may be thankful that Adam Smith's lot was cast in Glasgow; for peace is the atmosphere in which industry thrives, and Glasgow has usually kept itself singularly aloof from political and military movements. When the Pretender marched into it on his way from Derby, it offered neither encouragement nor opposition. It simply shut its shops. In vain did the Prince put on his gayest silk tartans and ride through the

streets. Our ladies, said the Provost, would not turn their heads to look at him. When he demanded a fine of £15,000, the citizens higgled, got it cut down to £5000, and when he was gone put in a claim on the Government for the full amount—and got it. The attitude was characteristic. Glasgow was a city of douce hard workers, who counted war an impertinent interruption of more serious things.

But, before Adam Smith became an economist, he was a philosopher, known throughout Europe for his *Theory of the Moral Sentiments*. Of that theory of morals, based on sympathy, it is not my part to speak. It belongs to the period. Twenty years had to elapse before the *Critique of Pure Reason* gave the new birth to philosophic thought, and, before Kant, the significance of Greek philosophy was scarcely understood. Like the men of his time, he quotes the Stoics rather than Plato and Aristotle. He despises metaphysics, for the metaphysic he knew was the "pneumatics" of Oxford. But a moral philosophy with no basis of metaphysic would scarcely be appreciated in Scotland now.

Whatever we may think of his philosophy, however, he was at least for these thirteen years engaged in the constant study and teaching of moral ideas. He had no thought of bounding man's horizon by the material. If the universe had little mystery for him, man was at least the offspring of God, and God was the great Author of Nature who intended the good of all His creatures. If he is optimistic —as economists usually are—it is because "the happiness of mankind seems to have been the original purpose intended by the author of Nature," and because he sees that for true happiness man requires but little. "What," he asks, "can be added to the happiness of a man who is in health, who is out of debt, and has a clear conscience?" "Take the whole earth on an average, for one man who suffers pain and misery, you will find twenty in prosperity and joy, or at least in tolerable circumstances. . . In ease of body and peace of mind all the different ranks of life are nearly upon a level, and the beggar who suns himself by the side of the highway possesses that security which kings are fighting for." So, he thought, the world went very well then.

With God in his heaven, most men had the good life within their reach if they sought it in quiet hard work.

Thus to speak of Adam Smith as one who preached the Gospel of an ignoble selfishness is to forget that the writer of the *Wealth of Nations* was already famous as the writer of *The Moral Sentiments*, and that he could trust to the latter book being better known than the former. He was individualistic in his economics as he was individualistic in his philosophy, because he believed that the individual was God-controlled. It was the special ordinance of God that man should be "first and principally recommended to his own care;" but, while thinking that he was carrying out his own personal interests, he was really being "led by an invisible hand to promote an end which was no part of his intention."

The second formative period of the *Wealth of Nations* was the two years and a half spent in France as "bear-leader" to the young Duke of Buccleuch. In 1763 Adam Smith was offered the post; and, as it carried a pension of £300 a year for life—about double what he could ever hope to have as a professor—he accepted it.

The importance of this period is that he was then brought into the closest contact with the intellectual leaders of France at that singularly hopeful time when freedom of thought and of speech had become fashionable. It was the age of the Encyclopaedia. Voltaire was its high priest. Turgot—a man whose greatness has never been sufficiently recognised—was, to all appearance, the coming power in the State. The age of privilege seemed about to pass away bloodlessly. The "people" were in everybody's mouth.

With the singular little band of men known as the Physiocrats or Economistes he spent most of his time, meeting under the roof of the King, in the rooms of Quesnay, the beloved physician. Among them he found himself at home; for many things that he had struck out of his own thinking in Glasgow were there the property of the sect. Their point of contact was that the Physiocrats were economists first and political reformers second. The base of society in their doctrine was the peasant. Poor peasants, they said, poor kingdom; poor kingdom, poor king—a new

gospel for those who thought that the divine order of things was that kings and nobles and upper classes came first, and that the workers were fed from the crumbs that fell from their table.

Their economic doctrine, indeed, was one-sided. It had arisen in reaction; the result partly of the *Return to Nature* which Rousseau was making the fashionable cult of Paris, partly of the appeal to justice on behalf of a peasantry deserted by its natural leaders, and robbed of everything but subsistence by taxation. Adam Smith did not spare their errors; but it was in France, I think, that the love of liberty became the very heart's blood of him; for there, at anyrate, any man starting from the economic basis could not but end in passionate revolt against privilege, sinecure, and the divine right of kings to govern wrong.

Of the third period—the ten years spent in writing and revising his book—we know very little except by its results. He settled down in his mother's house at Kirkcaldy for six years, looking out on the world as spectator; refusing to stir even to see his dear friend David Hume; taking no part in its life—simply thinking and writing. Time will not permit me to catalogue the startling changes of this period. The Industrial Revolution had commenced, and the world went very fast in these ten years. And I may remind you that, a year before the book was published, "the shot fired was heard round the world."

These, then, are the three formative periods of the book which, said Buckle, "has done more towards the happiness of man than has been effected by the united ability of all the statesmen and legislators of whom history has preserved an authentic account."

Wherein, then, consists the greatness of Adam Smith?

First, and of course, that he laid down the lines of a new science. He was not the first economist. On every part of the subject something had been written; on many parts, much, particularly on money, on foreign trade, and on taxation. But he was the first to weave the whole industrial analysis into a connected fabric of scientific law.

The greatness of the achievement is not lessened by the fact that it was very much unconscious. A Scots professor in these days was not severely limited in his subjects. In the Logic Chair, Adam Smith used the material he had delivered in Edinburgh under the name of English Literature and Criticism. In the Moral Philosophy Chair, starting with natural theology, ethics, and jurisprudence, he went on, by the narrowest thread of connection, to consider what he called Police, and under this head he treated division of labour, price, money, the balance of trade, exchange, etc. So when, tired of the dulness of a French provincial town, he began to expand this latter part of his work, he had no idea that he had begun the first system of political economy. "I have begun to write a book," he writes to Hume, "to pass away the time. You may believe I have very little to do."

Perhaps its immediate success was due to this want of consciousness. It has not the modern scientific form. Modern economists who write books which the public will read are suspected by their colleagues. But the *Wealth of Nations* is readable from end to end. The explanation is, as Bagehot acutely remarks, that "Adam Smith never seems to have known that he was dealing with what we should call an abstract science." He was simply "writing a book."

He starts with the fundamental fact that there is one universal necessity of human life—a necessity imposed on it by the Creator—that every man has to work for his living, unless by some chance he can buy or compel other men to work for him. Hence, apart from its title, the first word in the treatise is not Wealth, but Labour. By labour, man is supplied with the necessaries and conveniences of life. By these necessaries and conveniences the labouring man is fed—enabled, that is, to live and continue his labour. As this labour grows more fruitful, life gets easier, work gets less toilsome, and there is a surplus which may be spent in wasteful ways—which may fall into hands that toil not. "'Tis true, 'tis pity; pity is, 'tis true." "Wealth" is perverted from its original meaning of the

food of man—the raw, indigestible material of the universe worked up into shapes which can be assimilated by his many-sided life—into a something materialised in money, desired for itself, and misused by false appetites. But this does not alter the fact that the overwhelming majority of men have to work, and to work hard, for their living. To speak of them, as some later economists perhaps did, as actuated by the one overmastering desire of wealth, is monstrous. One might as well say that the one overmastering desire of the sheep is to eat grass. Man cannot live without eating; he cannot eat without working. Adam Smith, at least, never made the mistake of counting wealth an end, with the desire of which political economy begins, and with the attaining of which political economy ends. With him the heroic figure—the figure which explains everything—is the Worker.

Glance rapidly over the contents. The First Book is occupied with the phenomenon which had changed the character of labour and made it so much more fruitful—its division. The division is made possible by money, and here begin the long and famous discussions on money. But the division of labour brings in inevitably a distribution of the produce of labour which is far from simple and obvious. In the primitive state, if a hunter kills a deer, the deer is the produce of his labour—its natural reward—its wage; and, in this state of things, the whole produce of labour belongs to the labourer. But we have to deal with a state of industry where hundreds and thousands of various kinds of energies go to the making of one finished commodity. It is the price paid for the finished consumption good that is, in the last resort, divided out among all the factors of its making, from the beginning in the earth to the end on the counter. But, before that final price is paid, most of the factors have already been paid in anticipation. Evidently, in such a state, we are plunged at once into a theory of value which is at the same time a theory of distribution, involving the very deepest discussions of economic justice. The Second Book treats of the fact that labour, its quantity and its efficiency, must depend on the

amount and greatness of the tools with which it works. Here, naturally, comes the discussion of Capital, its meaning, its origin, and the methods of its application. The Third Book takes the fact that nations and Governments have thought it their duty to lay down certain plans and ideals for labour—that some nations had encouraged the industry of the country, others that of the town, and that scarce any nation had dealt equally and impartially with every sort of industry. Here we have an account of these national labour policies. The Fourth Book deals with the economic theories which had been framed to defend these policies; and we have the masterly discussions of mercantile and physiocratic theory. Lastly, in the Fifth Book, comes the consideration that there are certain things which the private industry of man is not sufficient to compass—great branches of activity which had, naturally, fallen to the committee called Government; the question how Government expenses should be met leading to the great discussion on the means of raising the revenue.

I think I am right in saying that, from end to end, this is a treatise on Labour. There cannot be a science unless there is uniformity in the phenomena with which it deals. This uniformity does exist in the daily commonplace life of man. But it is not in the desire for wealth, with all the sordid corollaries which such a phrase suggests, but in the universal necessity of labour.

What is Labour. It is, first, a necessity—the fundamental necessity since man left the miraculous garden where apples grew without cultivation. But it is far more. Every man who has eyes to see knows that the redemption of man comes through labour. If I were asked to-day, "Which would you rather have—a universal working day of nine hours or a system where half an hour's labour per day would yield all that man needs?", I should unhesitatingly choose the nine-hours' day.

How it was that Adam Smith's analysis of the organised labour of a people came to be regarded by some in later times as a sordid thing—a glorification of wealth and a justification of greed—I do not know. I cannot help

thinking that if the expression "desire for wealth," which is by no means a universal characteristic, had been replaced by the expression "necessity of labour," the misdirection of such attacks would have been obvious. The two great writers who assailed it most bitterly never seem to have been aware that they were part and parcel of the economic life, manifesting the same uniformities of action as the ploughman or the stockbroker. My old friend John Ruskin, in the last letter he ever wrote me, said that the constant marvel with him was that I should have become a professor of economics. But the constant marvel with me is that these two great critics of a systematic study of organised industry should have been never weary of singing the praises of labour. In idleness, they said, is perpetual despair. They seem to have thought either that books were not wealth or that authors were not workers, or, perhaps, that, somehow, they were exceptions in their way of doing business,—although I find that they higgled with their publishers just like ordinary men.

Adam Smith's second claim to greatness I scarcely know how to place. It is generally said that it was by his advocacy that industry became free, and that this country subsequently became the great exemplar of free trade among nations. This is true. But the difficulty of treating of it separately is that freedom—what he called natural liberty —was worked into the very fibre of his science. The *Wealth of Nations* might indeed be called a treatise on natural liberty carried into industrial life. Much of it—and not the least valuable part—is polemical, aimed at the innumerable restraints on freedom bound up with theories which had, perhaps, a better right to the name of political economy than his system had. Before Adam Smith's day the nations of Europe were very much self-contained units, fighting for national existence. The life and pursuits of the individual were controlled and regulated by the necessity of defending the State to which he belonged. War was never out of men's minds, and the issues of war were not indemnities, but conquest, change of laws—perhaps change of religion. Hence the predecessors of Adam Smith, when they were not

foreign merchants, easily mistaking the conditions of their own prosperity for the conditions of national well-being, were not economists so much as politicians and statesmen, concerned chiefly with the means of maintaining and defending the life of the nation. Petty and Davenant, for example, dealt almost exclusively with the expenses of government and the means of raising its revenues. This is the explanation of what seems to us the monstrous position assigned to the precious metals. Gold and silver are, indeed, only a small part of the wealth of peoples, but in these days they were a very real part of the wealth of warring nations. Hence, too, the prevailing views upon such political instruments as customs tariffs and foreign trade; hence the web of regulation woven round the shipping industries; hence, perhaps, the consideration shown to the landed classes as the chief contributors to the Government revenues. This is how the science got its name of Political Economy. But, beginning with this subordination of the industrial life to the necessities of government, the idea of restriction and regulation ran right through the whole economic fabric. Thanks to the ill-contrived law of settlement, it was "more difficult for a poor man to pass the artificial boundaries of his parish than to pass an arm of the sea or a ridge of high mountains." Land was made a monopoly by primogeniture and entails. Cheap goods were hindered from coming in from other countries—even from Ireland—to suit "the impertinent jealousy of merchants and manufacturers." When Pitt began to reform the finances with the *Wealth of Nations* in his hand, there were 1200 articles on the tariff list. Foreign trade was checked by prohibitions and export duties. The colonies—peopled by our own sons—were treated as preserves for English traders. Everywhere industry was guarded and protected till it could scarcely move its limbs.

If you consider that Adam Smith began at the other end, you can see how deeply he came into collision with these ideas. He starts with the labour of a people—its ordinary commonplace toil. In that labour, divided and organised,

he finds the source of its living and of its wealth. In the free development of labour he finds its increase. It is only at the end—in his Fifth Book—that he comes to what others had started with. But the Government revenue, he said, does not need nursing. It depends on the industry of the people. Increase the product of that industry and the Government revenue increases naturally and automatically. In this view Government has, indeed, a sphere and a natural sphere. Its first function is to afford security. Its second is to administer justice. Its third, to erect and maintain certain public works and certain public institutions, which it could never be for the interest of any individual or small number of individuals to erect and maintain. Beyond that, what can Government contribute to the great economic task of producing the necessaries and conveniences of life? Nothing. Sweep away all this restriction, he said. Leave people free to make and sell what they like, where they like, how they like, and industry becomes a great international mutual co-operation of producers: supply is demand, and demand is supply.

How, starting from this basis, he launched heartily into the denunciation of every form of combination and privilege, it would take too long to tell. It may carry the more weight—for honesty of intention at anyrate—if it is remembered that the hardest things he said of restriction were said against the profession to which he himself belonged—the monopoly of teaching for degrees by the universities.

Much has happened since Adam Smith wrote. It is no longer necessary to read the *Wealth of Nations* to know his doctrines. They are the very warp and woof of modern economics. But we are not just to his memory if we forget that he was preaching doctrines which were then counted dangerous to the very life of the nation. People saw in him the analogue of his friend Hume. When the French Revolution burst many said, "Behold the doctrines of Adam Smith carried into practice." He was indeed in his day a heretic of the heretics. The

two greatest reformers the world ever saw were put to death—probably with perfectly honest intentions; for to the crowd it has always appeared better that one man should die than that the vested interests of the nation should perish. The days of putting heretics to death were past by 1776, but one religious body at least showed what might have happened in earlier times. The Inquisition in Spain suppressed the *Wealth of Nations* for the "lowness of its style and the looseness of its morals." Now all reformers are one-sided; they must be one-sided. To reform a religion they have sometimes to pull down a cathedral. Adam Smith had a whole Augean stable of fallacy and vested interest to sweep out—and I have no doubt that, when Hercules swept his stable, many a good thing went down the drains.

And, again, we are not just to the memory of Adam Smith if we take all he said a century and a half ago as applicable to the world of to-day. The division of labour, of which he saw the mere beginnings, has been carried to an extreme. The organisation of industry has become so complete that those who cannot find a place in the organization are in danger of starving in the midst of plenty. The freedom of industry, which he thought a Utopian dream of his own, has become a fact. But freedom and organisation have brought their own problems. With the growth of local government, many things have been added to the category of things which the State can do better than the individual; and, with the very growth of liberty, has come greater need of securing that liberty against its own abuses. More than all, perhaps, the ruling body has changed its character. Many things could be urged against a Government when it meant a number of men, chosen by privilege and accident of birth, doing the best they could for classes with which they were not very much in sympathy, which cannot be urged against a Government that is a committee of ourselves, armed with no powers but such as it gets from the mandate of the people. Freedom is a noble thing; nay, it is the greatest of things. But there is no freedom without government, any more than there is self-realisation without self-restraint.

In the greatness of Adam Smith there is one thing more I must mention, if only mention. It is the stainless purity and high honour of his life. "I have known Adam Smith slightly," said Sir James Macintosh, "Ricardo well, and Malthus intimately. Is it not something to say for a science that its three greatest masters were the three best men I ever knew?"

THE orations having been listened to with unflagging attention, the assemblage awaited with undiminished zest the ceremony of the Graduation. A few necessary changes were quickly made in the arrangement of the hall, and, the Principal, wearing the Vice-Chancellor's robe, and taking his place on the rostrum, the presentation of the graduands began, each group, marshalled according to its nationality, being conducted to the front of the platform by an usher with a white rod, to the strains of the national air of its country.

We cannot do better than borrow some passages here from the sketch of this part of the proceedings in the *Scotsman* of June 14th.

An element, says that paper, tending to make the ceremony unique, was the presence of ladies, for the first time, amongst the recipients of honours of the University Senate. Their presence was a notable feature in itself, and individually they added in no slight degree to the notable character of the assembly. Of the four ladies selected to receive the honorary degree of LL.D., only three were able to be present. The three ladies were the first of a long and distinguished company to receive their degrees at the hands of the Principal. The departure was evidently a popular one, the ladies being loudly cheered as they passed in front of the Principal's chair. A significant feature of the company of graduands, in addition to their different nationalities, was the variety of the channels of life through which they have attained eminence. As was appropriate, men eminent

in science and letters comprised the most numerous section of the recipients of the degrees. There were others, however, who are not known to the public in virtue of their academic standing. Among those who are associated with the calm pursuits of the scholar, there came forward gallant soldiers like Sir Ian Hamilton and Sir Archibald Hunter, whose military uniform and warlike accoutrements made them distinctive in the assembly of savants. Lord Balfour of Burleigh, Secretary for Scotland, whose interest in education is well known, was another notable graduand. Mr. Andrew Carnegie, whose munificence has made his name famous, had an enthusiastic reception. Eminent ecclesiastics, from Leipzig, Paris, Genoa, New York, and Canada, received the degree of Doctor of Divinity. From time to time, as well-known men stepped on to the platform, they were greeted with loud cheering, and in numerous cases with musical honours. Professor Smart, who read out the names of those upon whom the degree of LL.D. was to be conferred, in presenting Mr. Carnegie, described him as one whose name would descend to all generations of Scottish students as the most munificent benefactor of the Universities of his native land. As Mr. Carnegie advanced, those around him rose to their feet, amidst loud cheering. The alphabetical order observed brought together such notable groups as the Marquis of Dufferin and Ava, Professor Nicolas Egoroff, St. Petersburg; Professor Farlow, American Academy of Arts and Sciences, Boston; and the Comte de Franqueville, President of the Institute of France. Major-General Sir Ian Hamilton and Sir Archibald Hunter were also the objects of enthusiastic demonstrations. The former was greeted with a verse from "The Soldiers of the Queen" by the students' choir—the latter by the chorus of "Tommy Atkins." Student humour, which is usually conspicuous at graduation ceremonies, gave place yesterday before the impressiveness of the occasion. There were occasional evidences, however, of the presence of the younger element in the assembly, which were not altogether unwelcome. One of these marked the conferring of the degree on Sir Archibald Hunter. As the gallant soldier,

after standing at the side of the platform until the other members of his contingent had signed the roll, stepped off to return to the area, the order "Quick march" came in stentorian military tones from the gallery. Sir Archibald looked up and smiled, appreciating the humour of the incident. Sir Alexander Mackenzie represented music, and Sir Francis Powell, President of the Royal Scottish Society of Painters in Water Colours, represented the sister art. Sir James Reid, physician in ordinary to the late Queen, was loudly cheered as he came forward. Professor Joji Sukurai, from far Japan, was also a popular recipient of the degree. The scene within the hall during the capping ceremony was very striking. The seats of the Senate, the Court, and the Magistrates, surrounded the Principal on the platform, in front of which the mace was placed. The front seats of the area were occupied by the graduands, among whom at intervals appeared the white rods of the ushers in charge of the various contingents. Behind these were the delegates, wearing their academic robes, and including the lady representatives attending from various institutions in this country and in America. The side and back seats were occupied by the public. The flags of many nations were suspended on the walls in honour of the foreign visitors, and they formed a responsive note of colour to the academic robes of the University guests. The proceedings throughout were followed with the liveliest interest.

Professor Stewart, Clerk of Senate, explained that the number of degrees to be conferred was so large that it would be impossible to enter upon an elaborate eulogy of each graduand. The Senate had therefore resolved to confine itself simply to calling up the famous men to receive the degree in the alphabetical order of their surnames.

The rule thus laid down was broken only in the case of the ladies, who have the honour of heading the list of those who are recipients of the University's honorary degrees. Of Mrs. Campbell of Tullichewan, Professor Smart said that she was a lady whom the University delighted to honour—the originator of the movement for the higher education of women in Glasgow—by whose long and unselfish efforts

Queen Margaret College had become the women's department of the University of Glasgow. Miss Emily Davies he described as the originator of the movement for the higher education of women in England, and the founder of Girton. Professor Smart expressed regret that the next degree required to be given *in absentia*. It was that of Mrs. John Elder, who, in memory of her husband, the famous ship-builder, endowed the Chair of Naval Architecture in Glasgow, increased the endowment of the Engineering Chair, and purchased and handed over the buildings and ground for Queen Margaret College, in addition to many and great benefactions to Glasgow and its neighbourhood. He next introduced Miss Agnes Weston, whose great work for sailors was, he said, known to all.

Coming to Mr. Carnegie's name, Professor Smart said he had the great honour and pleasure of presenting one whose name would descend to all generations of Scottish students as the most munificent benefactor of the Universities of his native land. The Honourable the Lord Provost of Glasgow, he said, he did not need to introduce to that audience. In regard to the Comte de Franqueville, he said they were honoured by the presence of the President of the Institute of France; and Lord Glasgow he introduced as a former Governor of New Zealand; Major-General Sir Ian Hamilton as a famous soldier; and Sir Archibald Hunter as not only a famous soldier, but as the son of a native of their city. Professor Martin H. Irving, University of Melbourne, he presented as the son of the great Edward Irving; and of Professor Leon Morel, University of Paris, he said that he was a Frenchman who had written a very remarkable book on James Thomson. Lord Strathcona was introduced as High Commissioner of Canada and Chancellor of M'Gill University, Montreal.

When the last graduand had received the cap,

Principal Story said—My Lords and gentlemen, graduates and members of the University, this concludes our function. It has been impossible to speak at length of the many graduands who have been presented, and still more impossible to hear any addresses from themselves; but there

is one distinguished member who wishes, in his own name, and I think I may say in the names of all our friends who have come here to receive these degrees, to express in a few words his sense of gratitude, and his congratulations to us upon the termination of this meeting.

Professor Bonet Maury, University of Paris, said—Ladies and gentlemen, allow me to say a few words of thanks in the name of the French Professors and scholars to whom the University of Glasgow allows the great honour of conferring degrees. The link of sympathy between the Scottish Universities and the French ones was not tied yesterday. It began with the middle ages. We still remember the names of those famous Scottish scholars—George Buchanan, John Cameron, and Andrew Melville, who taught in our French colleges or academics, and we are still proud to admit as members of our Institute of France, Lord Kelvin, Dr. Flint, and other Scottish scholars, so that I am glad to tell you, in the name of all of us, and even, I dare say, on behalf of all the foreign delegates, of our gratitude, not only for the honour which has been conferred upon us, but also for the hearty welcome which has been proffered to all. When we go back to our own country we shall tell our colleagues of all the grand festivities which have marked this jubilee, that it is characteristic of the celebrations that ladies have been admitted to graduate for the first time at Glasgow, and that Japanese have come from the Far East to graduate at this University. We shall try to tighten the bond of brotherhood and sympathy which for many centuries united both countries. I shall conclude with the salutation to your University—"Vivat, Crescat, Floreat."

The students then sang their new song (which will be found in the Appendix), written and composed for the occasion, entitled "Floreat Alma Mater." This was followed by the National Anthem, and the assemblage separated.

We append the full list of Honorary Degrees conferred on this occasion.

I. DEGREE OF DOCTOR OF DIVINITY (D.D.).

Rev. Thomas Kingsmill Abbott, B.D., Litt.D., Trinity College, Dublin.

Rt. Rev. the Lord Bishop of Bath and Wells.

Rev. Professor Charles A. Briggs, D.D., Union Theological Seminary, New York.

Rev. Professor Francis Brown, Ph.D., D.D., Union Theological Seminary, New York.

Rev. Professor Thomas Kelly Cheyne, M.A., D.D., Oriel College, Oxford.

Rev. Professor Andrew B. Davidson, D.D., LL.D., United Free College, Edinburgh.

Rev. Professor Samuel Rolles Driver, D.D., Christ Church, Oxford.

Rev. Principal James Oswald Dykes, M.A., D.D., Westminster College, Cambridge.

Rev. Professor Robert Flint, D.D., LL.D., University of Edinburgh.

Rev. Professor Caspar René Gregory, University of Leipzig.

Rev. Thomas Kennedy, D.D., Moderator of the Assembly of the United Free Church of Scotland.

Rev. Professor Samuel M'Comb, M.A., Queen's College, Kingston, Canada.

Rev. Hugh Macmillan, D.D., LL.D., West U.F. Church, Greenock.

Professor Gaston Bonet Maury, University of Paris.

John E. B. Mayor, D.C.L., St. John's College, Cambridge.

Rev. Donald Miller, M.A., Genoa.

Rev. Principal Ernest Morel, University of Neuchâtel.

Rev. Principal R. Vaughan Pryce, M.A., LL.B., New College, London.

Rt. Rev. the Lord Bishop of Ripon.

Very Rev. Principal Alexander Stewart, M.A., D.D., St. Mary's College, St. Andrews.

Rev. Professor Henry Barclay Swete, D.D., Gonville and Caius College, Cambridge.

Very Rev. Andrew Tait, D.D., LL.D., Dean of Tuam (in absentia).

II. DEGREE OF DOCTOR OF LAWS (LL.D.).

Mrs. Campbell of Tullichewan Castle.

Miss Emily Davies, 12 York Street, Portman Square, London, W.

Mrs. John Elder, 6 Claremont Terrace, Glasgow, in absentia.

Miss Agnes Weston, Royal Sailors' Rest, Portsmouth.

President Charles Kendall Adams, LL.D., University of Wisconsin, Madison.

Le Comte Eugène Goblet d'Alviella, Free University of Brussels.

President Alexander Anderson, M.A., Queen's College, Galway.

Philip James Bailey, Esq. (author of "Festus"), in absentia.

Professor J. Mark Baldwin, Ph.D., Sc.D., Princeton University, New Jersey.

Right Hon. Lord Balfour of Burleigh, Secretary for Scotland.

Professor Isaac Bayley Balfour, M.D., D.Sc., University of Edinburgh.

Right Hon. Earl Beauchamp, K.C.M.G. (formerly Governor of New South Wales), University of Sydney.

Professor Barbeau, University of Caen, France.

Professor Adolph Barkan, M.D., Cooper Medical College, San Francisco.

Principal Antoine Benoist, University of Montpellier, France.

Professor Carl Bezold, University of Heidelberg, Germany.

Professor James Blyth, M.A., Technical College, Glasgow.

Professor G. Brissaud, University of Paris.

Professor W. C. Brögger, University of Christiania, Norway.

Professor John B. Bury, M.A., Litt.D., Trinity College, Dublin.

Andrew Carnegie, Esq., Skibo Castle, Sutherland.

Sir John Cheyne, K.C., Sheriff of Renfrew and Bute, Vice-Dean of Faculty of Advocates.

Professor John Chiene, M.D., University of Edinburgh.

The Hon. the Lord Provost of Glasgow, Samuel Chisholm.

Sir William Selby Church, Bart., M.D., Royal College of Physicians, London.

Professor Giacomo Ciamician, University of Bologna, Italy.

Professor Daniel J. Cunningham, M.D., D.C.L., F.R.S., Trinity College, Dublin.

The Most Noble the Marquis of Dufferin and Ava, G.C.B., K.P., D.C.L., F.R.S.

Rev. Principal George C. M. Douglas, D.D., United Free Church College, Glasgow.

Professor Nicolas Egoroff, Imperial Military Academy of Medicine, St. Petersburg.

Professor William G. Farlow, M.D., LL.D., American Academy of Arts and Sciences, Boston, Mass.

Principal George Carey Foster, B.A., F.R.S., University College, London.

Le Comte de Franqueville, President of the Institute of France.

Professor Thomas R. Fraser, M.D., University of Edinburgh.

Professor Charles Mills Gayley, B.A., Litt.D., University of California, Berkely.

Sir Archibald Geikie, F.R.S., F.G.S., D.C.L.

The Right Hon. the Earl of Glasgow, G.C.M.G., formerly Governor of New Zealand.

Robert Gourlay, Esq., Glasgow.

Major General Sir Ian Hamilton, C.B.

Principal Alfred Hopkinson, M.A., B.C.L., K.C., Owens College, Manchester.

Professor A. A. W. Hubrecht, Sc.D., LL.D., University of Utrecht.

Sir Archibald Hunter, K.C.B.

Professor Martin H. Irving, M.A., University of Melbourne.

Henry Jackson, Litt.D., LL.D., Trinity College, Cambridge.

Professor Franz Kielhorn, LL.D., C.I.E., University of Göttingen.

Rev. Professor William D. Killen, D.D., Belfast Presbyterian College (in absentia).

Professor Hugo Kronecker, University of Berne.

Professor C. de Kroustchoff, Imperial Military Academy of Medicine, St. Petersburg.

Joseph Larmor, M.A., D.Sc., F.R.S., St. John's College, Cambridge.

Principal Oliver J. Lodge, D.Sc., LL.D., F.R.S., University of Birmingham.

Professor J. Loth, University of Rennes.

President James Loudon, LL.D., D.C.L., University of Toronto.

Professor Ivan Loutchitzky, University of Kieff.

Sir William MacCormac, Bart., K.C.B., K.C.V.O., President of the Royal College of Surgeons, London.

Professor James Gordon MacGregor, M.A., D.Sc., F.R.S., Dalhousie University, Halifax, Nova Scotia.

Principal John Yule Mackay, M.D., University College, Dundee.

Sir Alexander C. Mackenzie, Principal of Royal Academy of Music, London.

Rev. Dugald Mackichan, D.D., sometime Vice-Chancellor of the University of Bombay.

Professor Ernest Mahaim, University of Liége.

The Right Hon. Sir Herbert E. Maxwell, of Monreith, Bart., M.P.

Major-General Patrick Maxwell, Bath.

Adolf Meyer, M.D., Clark University, Worcester, Mass.

Professor Johannes von Mikulicz-Radecki, University of Breslau.

James Milligan, M.A., Headmaster of Glasgow High School for Girls.

Professor Edmund James Mills, D.Sc., F.R.S., Technical College, Glasgow.

William Mitchell, Esq., for many years Vice-Chairman of the Glasgow School Board.

Professor Vaclav Emanuel Mourek, University of Prag.

Professor Leon Morel, University of Paris.

James A. H. Murray, M.A., D.C.L., Editor of the Oxford English Dictionary.

Professor Raffaello Nasini, University of Padua.

Professor H. Edouard Naville, University of Geneva.

Professor Alfred Nerincx, Catholic University of Louvain.

Ernest Nys, LL.D., Palace of Justice, Brussels.

Emeritus Professor Sir Herbert S. Oakeley, Mus.D., D.C.L.

Professor Alexander Ogston, M.D., C.M., University of Aberdeen.

Professor John Perry, D.Sc., F.R.S., Royal College of Science, London.

Principal Sir George Hare Philipson, M.D., D.C.L., University of Durham.

Sir Francis Powell, President of the Royal Scottish Society of Painters in Water Colours.

Professor Frederick York Powell, M.A., Oriel College, Oxford.

Professor Heinrich Quincke, University of Kiel.

Sir William Henry Rattigan, LL.D., K.C., Punjab University, Lahore.

The Right Hon. Baron Reay, G.C.S.I., LL.D., G.C.I.E., President of the Royal Asiatic Society and of University College, London.

Principal Henry Rudolf Reichel, M.A., University College of North Wales, Bangor.

Sir James Reid, Bart., K.C.B., G.C.V.O., M.D., Physician in Ordinary to the late Queen.

Professor Carlo Reymond, University of Turin.

Rev. Principal Archibald Robertson, D.D., King's College, London.

Sir Henry E. Roscoe, D.C.L., F.R.S., Vice-Chancellor of the University of London.

Professor Edmond Rossier, University of Lausanne.

Paul Rottenburg, Esq., Glasgow.

Charles G. Russell, Esq., Editor of the *Glasgow Herald*.

Professor Jōji Sakurai, University of Tokyo.

Professor Thomas Day Seymour, LL.D., Yale University, New Haven, Conn.

The Hon. Mr. Justice H. H. Shephard, M.A., University of Madras.

Professor Johan H. E. Schück, Ph.D., University of Upsala, Sweden.

Professor Marian Smoluchowski de Smolan, University of Lemberg.

James Hutchison Stirling, LL.D., Philosophical Writer, and first Gifford Lecturer (1888-90), *in the University of Edinburgh (in absentia)*.

The Right Hon. Baron Strathcona, G.C.M.G., High Commissioner for Canada.

Professor Peter Guthrie Tait, M.A., D.Sc., University of Edinburgh (in absentia).

Professor Joseph J. Thomson, D.Sc., F.R.S., University of Cambridge

John Isaac Thornycroft, Esq., F.R.S., Naval Architect and Engineer.

Professor Clement A Timiriazeff, University of Moscow.

The Hon. Charlemagne Tower, LL.D., Ambassador of the United States at St. Petersburg.

Anthony Traill, M.D., LL.D., Trinity College, Dublin.

Professor Hugh Walker, M.A., St. David's College, Lampeter, Wales.

Professor Robert Mark Wenley, M.A., D.Sc., D.Phil., University of Michigan, Ann Arbor.

Professor Horatio Stevens White, Cornell University, Ithaca, N.Y.

Principal Michael J. White, M.A., Canning College, Lucknow, University of Allahabad.

Hofrath Professor Julius Wiesner, University of Vienna.

Sir John Williams, Bart., M.D., Emeritus Professor, University College, London.

Professor August W. Witkowski, University of Cracow.

THE next item in the programme for this day was "The Opening of the New Botanical Buildings," at 3 p.m. This function may be regarded as the inauguration of the scheme of "University Expansion and Better Equipment," which was set on foot in the last year of the bygone century. Many other openings of new premises are sure to follow, but this one enjoyed the distinction of being the first in order, and sharing the *eclat* accompanying the celebration of the Jubilee. It also had the unique honour of being presided over by the veteran Sir Joseph Hooker, whose father was the professor of Botany in the University 80 years ago. The hall in which the ceremony took place could not accommodate the host of auditors and spectators that had witnessed the previous proceedings, but the company that assembled, if not numerous, was of a strikingly representative character, including Lord Lister, Lord Kelvin, Sir William Turner, President of the British Association; Sir W. Thistleton Dyer, of Kew; Sir Archibald Geikie, Sir W. T. Gairdner, Principal Donaldson, the Right Hon. J. A. Campbell, the Lord Provost, and others, besides several members of the Senate and Court.

The Principal took the chair, and on his invitation

Professor Bower gave an account of the steps taken for the erection of the department, explaining the manner in which the funds were raised and the purposes to which the buildings were to be devoted. The object kept in view, he said, had been to provide a few first-rate rooms suitable for the regular teaching of elementary and advanced classes, rather than a multiplicity of rooms for separate research. None the less, there was in the building convenient space for many more original investigators than had ever required it hitherto; and it was his hope that the building would not only be adequate for present needs, but also for such developments as might be reasonably anticipated in the near future.

The Principal said he had been asked by Professor Bower to say a few words of acknowledgment of the bene-

factions, by whose assistance that building had been completed. As they had learned from the statement which had been made, a large part of the expenditure had been from funds at the disposal of the University itself, but these had been supplemented by money from other quarters, without which the building could not have been carried out to its present completion. Especially were they indebted to the trustees of the late Misses Steven, of Bellahouston, who on that, as on many occasions, had come forward generously to supplement their always limited resources. It was pleasing to be able to acknowledge their help on that occasion, and also to be conscious that what they had done by no means exhausted their opportunities and, he hoped, their willingness to help the University in the future. He thought they would admit when they had seen the building in its various details that no money could have been expended for a more thorough and effective purpose than that had been. He did not know in Britain—in fact his venerable friend Sir Joseph Hooker said there was not in Britain—a finer botanical establishment than that which now belonged to the University of Glasgow, and it was a very interesting feature in the celebrations of the present week that they should be able to accompany these with the ceremony of opening these halls. It was still more interesting that assisting them in doing so they should have in the person of Sir Joseph Hooker the most distinguished botanist of the day, and one who had a hereditary connection with Glasgow, his father having been here many years the Professor of Botany. They had also another distinguished botanist, who himself had occupied the position now held by his friend Mr. Bower—namely, Professor Bayley Balfour, of Edinburgh. It struck him yesterday that one of the most interesting trios that he ever saw at any academical or other function was the procession of Sir Joseph Hooker, his dear friend and former colleague Lord Kelvin, and Lord Lister, as they passed the chair at the presentation of the addresses. They were very grateful to have them again that day at the opening of the botanical department.

Sir James King, speaking on behalf of himself and

Sheriff Berry, who was present, and Dr. Ure, who was absent, said: It was brought to their knowledge as trustees of the Bellahouston Trust, that the Professor of Botany and the Professor of Engineering laboured under very great disadvantages in the teaching of their classes; and yet they knew that, notwithstanding, their energy and zeal were not relaxed, and that they were most successful teachers. The Trustees always desired to help those who helped themselves; and while they expressed their willingness to give substantial grants in aid of the erection of the premises to both professors, they asked that a considerable amount of supplementary help should be obtained from other sources. They came there that day with very great pleasure to find that the money had been so admirably spent, and to learn that Professor Bower found this classroom so perfect as regarded acoustics, and that his laboratories were so entirely to his mind.

Sir Joseph Hooker, who was received with prolonged applause, said—My friend Professor Bower has done me the honour of asking me to perform the function of declaring these buildings open, and to preface it by giving my earliest recollections of the botanical teacher and his teaching in this University. To do this I must ask you to imagine yourselves carried back to the first quarter of the last century—a time so long gone by that what I have to relate must be regarded rather as impressions retained than memories recalled.

My father was then the Professor of Botany, and to understand his position at the commencement of his career as such I must give you an outline of his previous life as a botanist. He had not been educated for the medical, or, indeed, any other learned profession. Having inherited ample means, and having been from childhood devoted to the study and collection of objects of natural history, he determined to devote his life and his fortune to travel and scientific pursuits. Beginning with ornithology and entomology, he subsequently confined his attention to botany, and a few years after coming of age undertook a voyage to Iceland, where he made large collections, with

notes and observations. These were totally lost through the rapid destruction by fire, in mid ocean, of the ship in which he was making the return voyage to England. His life and those of the crew were saved through the fortuitous arrival of a vessel that should have left Iceland before them, but which had been providentially detained. On his return he printed for private distribution his *Journal of a Tour in Iceland*, which was shortly afterwards published in two volumes. This secured his election as a Fellow of the Royal Society at the early age of 27. Having been frustrated in his intention to visit Ceylon (for which he had completed his outfit) through disturbances in the island, and from going to Brazil or South Africa by the war with France, he turned his attention to Scotland, where he made three extended botanical tours, travelling in the Highlands on foot, on horseback, or by boat, as far as the Orkneys and Skye. He also spent nine months botanising in France, Switzerland, and the North of Italy. In the intervals he devoted himself to the study of cryptogamic plants, chiefly mosses and hepaticae, upon which orders he published works that established his reputation as a systematic botanist.

Early in 1820, reduced circumstances requiring him to turn his botanical attainments to material account, he obtained, through the influence of his friend Sir Joseph Banks with George III., the chair of Regius Professor of Botany in this University. It was a bold venture for him to undertake so responsible an office, for he had never lectured, or even attended a course of lectures; and in Glasgow, as in all other universities in the kingdom, the botanical chair was, and had always been, held by a graduate in medicine. Owing to these disqualifications, his appointment was naturally unfavourably viewed by the medical faculty of the University. But he had resources that enabled him to overcome all obstacles—familiarity with his subject, devotion to its study, energy, eloquence, a commanding presence with urbanity of manners, and, above all, the art of making the student love the science he taught. Success attended the delivery

of his first course, hastily as it had to be prepared, as was proved by his students presenting him at the close of the course with a handsome silver vasculum, chased with the design of a moss that had been named after him, in token of their appreciation of his lectures. So, too, at the end of his second, he received a similar recognition in the shape of a beautifully bound early edition of Scott's poetical works in ten volumes.

But his energies were not confined to lecturing. Feeling the want of a manual on the Scottish Flora to put into the students' hands, he published, in time for use in his second course, the *Flora Scotica*, in two volumes, the outcome mainly of his earlier Scottish expeditions; and in readiness for his third course he produced, at his own cost, and from drawings made by himself, an oblong folio of twenty-one lithographed plates, with descriptions of the organs, etc., of upwards of three hundred plants. A copy of this work was placed before every two students in the class during that portion of each day's lecture that was devoted to the analysis of plants, obtained from the garden and placed in the students' hands for this purpose. I should mention that every student was expected to provide himself with a pocket lens, knife, and pair of forceps, aided with which they followed the demonstrations of the professor. I think it may fairly be said that these early lectures heralded the dawn of scientific botanical teaching in this University.

Another claim upon the professor's energies was due to the fact that the botanical class was in a great measure ancillary to that of Materia Medica, a practical knowledge of which latter subject was at that time required of candidates for a medical degree, diploma, or license by, I believe, all the examining bodies of the United Kingdom. Now the Glasgow students of botany were, with few exceptions, preparing themselves for the medical profession, and a considerable proportion of them at that time looked forward to service in the army, navy, India, and the Colonies, where they would be thrown on their own resources for ascertaining the quality of their drugs, which had either undergone a long voyage from England or had to be replaced by

such substitutes as the practitioner's knowledge of botany might enable him to discover. The professor hence devoted much time to teaching the botanical characters of the principal medical and economic plants. To this end he made large coloured drawings of them in flower, fruit, etc., which were hung in the class-room when the Natural Orders to which they belonged were being demonstrated, and he passed round dried native specimens of them taken from his herbarium, or living ones from the garden when they were to be had, together with samples of the drugs or other products which they yielded. I may add that this collection, which he presented to Kew, was the germ of the three Museums of Economic Botany, the first ever established, that are such important features of the Royal Gardens.

It remains to allude to the class excursions, which have always been and still happily are, a prominent feature of the botanical teaching in the Scottish Universities. Of these there were three: two on Saturdays were habitually to Campsie Glen and Bowling Bay respectively. The third, which was eagerly looked forward to by the most ardent of the students, took place at the end of June, during what was called the "preaching week," when the lecture-room was closed. It was to some good botanising ground in the Western Highlands. As many as 30 students have taken part in one of these larger excursions, each provided with as small a kit as possible, a vasculum and apparatus for drying plants. They were often accompanied by students from Edinburgh, and sometimes by eminent botanists, British and foreign.

In those days there were few inns in the Western Highlands and fewer coaches, and the roads were bad. On one of my father's first excursions to some mountains beyond the head of Loch Lomond he provided a marquee holding 30 persons, which was transported in a Dutch waggon by a Highland pony, and for supplies the party depended upon the flocks and fowls of the cottagers. On the first upon which I was taken as a boy, to Ben Lomond, there was no inn at Tarbet, and we all slept there in our clothes, on

heather spread on the floor of a cottage. On another occasion when I was allowed to join the party (more for fishing than for botanising) on an excursion to Killin, we walked the whole way from the head of Loch Lomond along the old military road made in the previous century by General Wade, eulogised in the well-known distich—

"If you'd seen these roads before they were made,
You'd have lift up your hands and blessed General Wade."

If I were asked what I regarded as of most importance to the student in the manner of my father's teaching as sketched above, I would answer that it taught the art of exact observation and reasoning therefrom, a schooling of inestimable value for the medical man, and one that is given in no other profession, but which ought to come, in this country, as it does in Germany, early in the education of every child. I have met many of my father's pupils abroad, in India and the Colonies, who have told me that these botanical lectures gave them the first ideas they had ever entertained of there being a natural classification of the members of the vegetable kingdom.

Then with regard to the results in a botanical point of view, the magnetism of the lecturer and the interest of the subject imbued many of his pupils with a love of science that proved permanent and fruitful. They made observations and collections for their quondam professor in the temperate and tropical climates of both hemispheres, some of them throughout their lives, which have very largely contributed to a knowledge of the flora and vegetable resources of the globe. After twenty years of professorship my father retired, and undertook the directorship of the Royal Gardens, Kew. Since that period great changes have been introduced in the method of botanical teaching in all our universities, due on the one hand to a vastly advanced comprehension of the structure of plants and of the functions of their organs, and on the other to a recognition of the fact that the study of the animal and vegetable kingdoms cannot be considered apart. Furthermore, chemistry, physics, and greatly improved microscopes are now necessary

for the elucidation of the elementary problems of plant life. The instruction in these two sciences (chemistry and physics) has with all others advanced in this University *pari passu* with that of botany, and kept it in the forefront of the educational establishments of the kingdom. The addition of the building in which we are assembled is evidence of the resolve that it shall not relax its efforts to maintain its well-earned position, and with the conviction that the botanical laboratory will prove an invaluable aid to research under the aegis of its distinguished director, I now, under his authority, declare it open.

Principal Story then said that an interesting ceremony was to take place—a presentation on the part of the students of the present session.

Mr. Allan said his first duty was to acknowledge on behalf of the students of botany the honour that had been conferred upon them in being allowed to give vent to their feelings on such an important occasion. It was their hope that that day might prove worthy of being remembered not only in the annals of the history of the University but in the history of botany in the West of Scotland, if not in Britain itself. He was there, as representing the students, to convey an expression of fellow-feeling that existed between professors and assistants on the one hand and students on the other. In Professor Bower they recognised, at once and in a word, an enthusiast—and the unconscious influence of enthusiasm made itself felt throughout all his work. The department of Botany lent itself, perhaps more than most departments in the University, to the cultivation of that feeling of comradeship with dignity between teacher and taught, which meant so much additional power placed in the hands of one endeavouring to guide the expanding mind of youth and assisted the students not a little in acquiring that love for their subject without which all study must to a very large extent be futile. Professor Bower had said he looked upon these buildings as additional advantages placed at his disposal for the advancement of the science, and that he would not feel satisfied until the presence of the buildings had been justified by the results, to which they all

looked forward with confidence. It was, therefore, to acknowledge in a small way their professor's labours that they decided to make that presentation. A clock had been selected, but unfortunately, owing to the limited time at their disposal, it had not yet been received from the makers' hands. In the meantime, however, he asked Professor Bower, as representing the department of botany in the University of Glasgow, to accept an inscription plate as an earnest of the clock which was to follow—being an expression of their spontaneous regard for him, and their earnest wishes that abundant success would crown all his efforts in the years that lay before him. The inscription plate is as follows: "Presented to the botanical department of the University of Glasgow by the students attending the summer class, session 1901, on the occasion of the opening of the new building by Sir Joseph Hooker, 13th June, 1901. F. O. Bower, M.A., Sc.D., F.R.S."

Professor Bower said he thought the one word Mr. Allan had used which was peculiarly apposite to the occasion was the spontaneity of it. The idea was sprung upon him a few days ago, and was the purely spontaneous move of the students themselves, though it followed on a certain remark he had casually made in the laboratory, that "it would be a great convenience to have a clock there." He thought they saw in that action of the students a practical demonstration of the very close relationship which there certainly was between teachers and taught at the present day. He looked upon that as one of the most hopeful signs they could possibly have, because it was that personal contact between those who happened to know a little more with those who happened to know a little less which he thought would really best advance the general position of the science. Mr Allan had been good enough to speak of him in terms to which he could hardly venture to respond, but he used the word "enthusiasm." He remembered telling his class one time that he was an enthusiast. That was a good many years ago, and perhaps he should not have used that expression after the experience of later years. One of the features which led to their pleasant position at the

present time was the establishment of regular elementary classes. They had present one who had been peculiarly connected with the furthering of elementary laboratory teaching in this country, a coadjutor of Professor Huxley when he was establishing those elementary courses of teaching at South Kensington which had done so much to make the present custom of elementary teaching a regularly understood thing in every one of the teaching places in the country—he meant elementary practical teaching in the laboratory. He did not mean to say that that revival of practical teaching started at South Kensington; they had already heard from Sir James King that practical teaching had taken place elsewhere. He was also aware that Professor Hutton Balfour, in Edinburgh, used to teach practical classes, but the thing was lifted on to a more general and universal footing by that great move initiated by Professor Huxley, with whom as coadjutor on the botanical side was Sir William Thistleton Dyer. When he (Professor Bower) was leaving London, a perfect stranger, to go to Glasgow, Sir William said to him, "Now, make it your business to secure proper buildings for botany in Glasgow."

Sir William Thistleton Dyer said this was a very remarkable occasion. He was not speaking merely of the opening of this splendid building, but of the memories which had been recalled in the celebration of the ninth jubilee of the university. There was one idea which had dominated the proceedings—namely, how great was the responsibility which fell on everyone who had to do with an academic institution, who had to do with education. Lord Kelvin, in an eloquent speech made the previous night, told them that the past, the present, and the future were all one, that the present was the heir of the past, and that the present was fraught with the responsibility of that which is to come. Now there were circumstances connected with the study of botany in this institution which had been dwelt upon by his distinguished predecessor in the institution over which he presided which illustrated the never-ending responsibility of academic work, for if it had

not been for his father's work in this University he did not think that Kew would be to-day what it is; and as the University of Glasgow looked to Bologna, so did Kew look to Glasgow. At the commencement of the reign of our late revered Sovereign it had been determined to make of the royal demesne a great scientific institution, and the Government turned to Glasgow and found in Sir William Hooker a man who could control and develop it. The reason they turned to Sir William Hooker was because he had founded in this University a new and original school; and he carried the traditions of his work from Glasgow to Kew, where they had been perpetuated. With regard to the present professor, he did not remember that he adopted so parental an attitude towards him; but he had never seen a command given heedlessly or in jest more magnificently fulfilled, and he was much mistaken if the consequences that would flow from the work done in this building would not in this city be almost as momentous as those which Glasgow gave to London when it sent Sir William Hooker. He was told that there were those who thought that this was too large a building to devote to so small a subject as botany. But what subject of interest did botany not touch? Darwin said: "I love plants; they present all the secrets of life in their simplest form." They found revealed in plants in simpler form than could be observed in the animal economy the inscrutable problem of life, and it was the study of these problems that would be pursued in this building. They had with them Lord Lister, and they knew the service he had rendered to humanity, and he had done so by curbing the lethal ends of obscure branches of that vegetable kingdom in their inroads on suffering humanity. In this great city, with its extensive commerce, there were problems absolutely immeasurable in the investigation of things and in their application in the arts. It had been said that even the science of jurisprudence might be approached by the study of botany. It brought the student into immediate connection with nature, and gave him the power of making accurate observations and drawing conclusions from what he had seen.

Lord Lister said it was a very great privilege to propose a vote of thanks to the veteran botanist of world-wide reputation—Sir Joseph Hooker. They rejoiced that the natural physical vigour which he exhibited so remarkably in his most wonderful and fruitful explorations in the Himalayas still remained with him in his advanced years, and enabled him to do what he had done that day. He was sure they all hoped that Sir Joseph Hooker would long remain among them the principal pillar and ornament of botanical science in the world. They most cordially thanked him for the most interesting account he had given of his father's life and labours. It was certainly remarkable that one who began as he did should have been so exceedingly successful as a teacher. His Lordship had heard only yesterday from one of those present at this splendid jubilee that the attendance of students at Sir William Hooker's classes in this University was something phenomenal. He might, perhaps, be permitted, as one who in a very humble way loved botany—loved it dearly—to echo what had been expressed by Sir Joseph Hooker, and hope that the University of Glasgow and all universities would never allow botany to be left out in the curriculum of medical study. He felt that the study of botany, if pursued under teachers such as the able and genial Professor —whom he congratulated on the most interesting evidence they had had of his success and his popularity—when botany was taught as it should be, it introduced the young student in the most beautiful way to the study of biology, and it cultivated those habits of independent and accurate observation which were of such enormous importance, and which were apt to pass uncultivated in later medical study. Then, to echo what had been said by Sir Joseph Hooker and Sir William Thistleton Dyer, one knew more and more that all life, whether animal or vegetable, was, so to speak, one; and with the great advance that had been made in late years in the knowledge of the vegetable kingdom, there could be observed and demonstrated with the utmost readiness many of the most important physiological truths and principles which applied to animals. It surely could

not be a matter altogether of indifference to a medical man that he should be absolutely ignorant of the source of the vegetable articles of the materia medica. There might have been excess of attention devoted to this branch of medical study, but to neglect it absolutely seemed to him to be the most profound error.

There were other subsidiary advantages from botanical study. If a man had not studied botany, how could he accept the post of analyst of an exploring expedition; how could he avail himself of the advantages he might have if he were placed as a medical man in some distant part of the world where there were objects all around him—vegetable as well as animal—well deserving his investigation and study.

Lastly, he knew from experience that botany gave life-long delight to the country. There were those who, when they went to the country, must have the excitement of sport to give them interest in it; but the botanist, whether he made his rambles at home or abroad, was always sure of making new acquaintances in the vegetable kingdom or recognising dearly-beloved old acquaintances. Therefore, from these various points of view, he ventured to express the earnest hope that botany would always be taught to the medical students of Glasgow University. His Lordship concluded by proposing a vote of thanks to Sir Joseph Hooker for his address.

Professor Bayley Balfour seconded the motion. As a former Professor of Botany in this University, one who dreamed or aspired to these splendid halls for teaching botany, he warmly congratulated Professor Bower on having the energy, perseverance, and persuasiveness by which he had managed to secure so magnificent an equipment. It was most fitting that these halls should have been opened by one whose teaching had dominated botanical science for the past half century, whose investigations had ranged over every field of botanical work, and whose influence upon the scientific thought of this country as a co-worker with Darwin was altogether immeasurable. Allusion had been made to the long connection of the Hookers with Glasgow

University. It was remarkable that a connection, first formed so long ago as 1820, should at the beginning of this new century be strengthened by the opening of these halls by Sir Joseph Hooker. Under the imprimatur of no higher name in the world of science could Professor Bower enter on the work he had to do in these halls.

THE only break in the genial weather of the Jubilee week occurred this afternoon, and somewhat discomfited the guests at the garden party in Queen Margaret College. But the showers passed away, and nothing could damp the ardour of the hundreds of visitors and members of the University who strolled about the pleasant grounds of the College, took tea on the terrace, and listened to the music of Mr. Cole's orchestra and Mr. Ryder's choristers.

The garden party lasted from 4 to 6 p.m., and in the evening the entertainments of a well-filled day were wound up by a great Conversazione—attended by about 3000 persons—in the Bute Hall, the Hunterian Museum, and the Upper Library. The proceedings commenced at half-past nine, and the reception of the guests by Principal Story, Mrs. Story, and several members of the professoriate, which took place at the entrance to the Bute Hall, occupied an hour and a half. The hall was decorated with banners and plants, and these, combined with the richly-coloured robes of the gentlemen and toilettes of the ladies, gave the interior a brilliant appearance. Among the gentlemen present were Lord Kelvin, Lord Lister, Lieutenant-General Sir Archibald Hunter, Major-General Sir Ian Hamilton, Sir William Thistleton Dyer, Sir Herbert Oakeley, Sir John Muir, Sir David Richmond, Sir James Marwick, M. Lodijenski, Russian Commissioner at the Glasgow International Exhibition; Comte de Franqueville, President of the Institute of France; the Marquess of Dufferin, Count Goblet

d'Alviella, Sir Richard and Lady Jebb, Sir Hugh Gilzean Reid, Sir James Reid, K.C.B.; Sir John and Lady Cheyne, the Right Hon. James A. Campbell, M.P.; Dr. Julius Wiesner and Dr. Fritz Wiesner, Vienna; Principal Marshall Lang, Aberdeen; Principal Rainy, Principal Peterson, the Hon. the Lord Provost of Glasgow, Rev. Dr. M'Adam Muir, Rev. Dr. Ross Taylor, Rev. Dr. Gillespie, of Mouswald; Rev. Dr. Hunter, Galashiels; Rev. Dr. Colin Campbell, Dundee; Sheriffs Guthrie, Boyd, and Fyfe; Dr. Dyer, Dr. Caird, Greenock; Dr. Murray, Oxford, etc. Vocal and instrumental music was discoursed in the Bute Hall, Hunterian Museum, Library; among the performers being the band of the 1st Lanark Royal Engineers, under Mr. W. H. Cole; the St. Andrew's Select Choir, and numbers of well-known vocalists. A party of pipers promenaded the corridors, and passed through the halls, at intervals during the evening, awakening the echoes to the stirring strains of the national instrument.

FRIDAY, 14th JUNE.

THE oration which was to have been delivered this morning by Prof. Young was, owing to his indisposition, entrusted to Professor Bower, who was listened to by a warmly appreciative audience while he discoursed, in Dr. Young's much regretted absence, upon

WILLIAM HUNTER,

Physician, Anatomist, and Founder of the Hunterian Museum, of which Dr. Young is the Keeper.

IT is not given to every University to boast, as is claimed for that of Paris, that it was great from its inception, *Quo primum nata est tempore magna fuit*, and assuredly early prosperity was not given to Glasgow. When, 450 years ago, James II., advised by Bishop Turnbull, obtained from Pope Nicholas a bull instituting the University, there had already existed at Glasgow both the taste for letters and the means of gratifying it. Not content with study at home, the youth of the country was wont to travel into England for greater knowledge, even to the Continent. As such journeys were impossible without safe-conducts, as these were of necessity solicited at the hand of the English executive, each request, however honourable its object, was an admission of a certain inferiority at a time when there was still a fresh memory of English forgetfulness of promises and, it must be admitted, of Scottish equivalent irritations.

It is not therefore impossible that the Border heredity of the Bishop had to do with his willingness to provide a permanent means of avoidance of a recurrent inconvenience, as well as a reason that the sons of the nobles should learn to put a higher value on their own land. The University, the child of the Crown as well as of the Church, was in a sense a King's daughter, but she was not all glorious within, was rather a Cinderella among Universities, dependent for existence, and that of the barest, on wholly inadequate provision, whether in money or lodgment. The Paedagogium, wherever situated, and the Chapter-house of the Cathedral as places of meeting, tell more of zeal than wealth, and the ultimate generosity which gave the site in the High Street opened a story which closed only thirty years ago. The generosity of Queen Mary availed not, but her son, by the deed of Nova Erectio resumed the regal benevolence of his ancestors. Of this document a summary translation is given in MacGregor's *History of Glasgow.* It is a curious document, in which the scanty resources of the institution are made the most of, and its resemblance to its Italian prototypes accentuated. But the University would be shamefully ungrateful were it to omit mention of the unceasing interest taken in its welfare by the Municipality which, from 1572, when it gave one of the three foundations of that year, down to the present time, has ever been ready to hold out a helpful hand. The Crown (including its temporary guardian, Cromwell), the Hamiltons, Regent Morton, Bishop Turnbull, these are recorded on our mace, but the arms of our City are there too, and tell of a fostering zeal without afterthought, directed solely by the desire "to improve our knowledges." The site in the High Street, though not lending itself to stately mansions, ended the need for meeting in the Crypt of the Cathedral, ended too the necessity of dwelling in shabby buildings such as, under the name of Paedogagia, testified till a recent date the modesty of the provision for the housing of the *cives academiae* as well as of learning. On the whole the fostering care of the Church was more beneficial than that of the Crown, at least down to the flight of Cardinal Beaton,

a patron, nay officially a guardian of the University, who plundered his charge in a wholesale fashion, only he treated the episcopate as he did the University: the property of neither has returned to it.

The Italian Renascence which guided the bull of erection had been carefully followed: the model of Bologna (or Padua) was that on which the western institution was founded. But the mediæval divisions were closely followed. Hence, though Faculties are spoken of, these are not to be understood in the modern sense: Medicine had no place. Physiology was nearly, in modern phrase, Physics, the science of nature. Small wonder that so little was medicine deemed to demand the fundamental study now held indispensable, so imperfectly was accurate observation regarded as claiming the attention of the physician, that he was, to all intents, a philosopher, and deserving of the fate of Jerome Cardan if he so much as imagined the possibility of error in anything asserted by Aristotle or Galen. The Chair of Medicine, founded in 1637, was in 1642 declared unnecessary by a Commission of the General Assembly. But in 1664 (only 22 years after) it was agreed that there ought to be a profession of Medicine. In 1703 however demand created supply, for an Englishman sought a degree, and as there had been for some time no professor, there being no funds for the office, it was resolved to name as examiner the best qualified at hand. Accordingly the then Professor of Mathematics, Mr. Robert Sinclair, was called on to act, and with him were associated two practitioners from the town, the report of this scratch board being adopted and Mr. Benion receiving a diploma. In 1718 Anatomy and Botany were combined in one chair, an association which lasted till recent years. Though three other chairs were founded, no farther advance towards a "Medical School" was possible till 1794, when the Royal Infirmary was organised, when clinical teaching was at the command of teachers and pupils. This agency had existed in Edinburgh from the first quarter of the century, when began that combination of university and extra-academical teaching, rivals yet associates, which

gave that city its position as for long the chief school in the country. For London as a competitor did not come into existence till the later period of the century: prior to that individual teachers attracted pupils, but organised, associated teaching was slow of arising, it was the doing finally of strangers.

When W. Hunter entered the University of Glasgow, there was nothing to entice him to the medical profession: in fact he seems to have tacitly acquiesced in his father's desire that he should qualify for the Church. Of his college course nothing is known beyond the fact that he spent three years in the Arts classes. But, whatever his associates within, he fortunately made the acquaintance of William Cullen, his senior by eight years, and then engaged in rural practice. Quickly was their alliance formed, and the quasi-partnership entered into whereby they were to give alternate years to the practice, and to study in Edinburgh. The pact was of brief duration. Speedily London cast its spell over Hunter, whither he was attracted by Douglas, to whom he became attached as aid in his anatomical work, and the more intimately that he became also the tutor of his son: it is possible that there might have been a tenderer bond, but death ended this possibility.

Douglas never published the illustrated work on which he spent much time and money, and in the preparation of which Hunter had useful experience. The proofs in the Museum make one regret that the labour was lost, for, as a series of anatomical drawings, it would have surpassed Cheselden's similar and lavish folio. The experience extended beyond the mere familiarity with the details of artistic selection and supervision: Hunter was thereby made to enlarge his anatomical knowledge, and to learn that the anatomist who would be both ready and accurate must have the complete mental picture of the regions he wishes to refer to always available at will. Something of this is preserved in the tradition of his treatment of Baillie when the young man began his career as lecturer: asking what he knew of the subject of the day's lecture, he bid him proceed with the demonstration, adding that he could only be at ease to whom

the absent dissection was distinctly present. But Douglas was also in practice as an obstetrician, and Hunter was thus kept in contact with the professional work in which he afterwards gained distinction and secured financial success. Even the opportunity of knowing the methods of the Paris school he owed to his tutorial position in Douglas' family; for though his pupil James wasted his time during his visit to the Continent, Hunter did not. He attended the lectures of Ferrein, and his notes show that he did so in a critical frame of mind, and that he was prepared for useful criticism. But he seems to have carried away the same impression of anatomical that Smellie did of obstetric teaching, that it would go hard if he did not better the example; for he kept in mind the great advantages possessed by Paris as regards the supply of subjects. This was, in fact, the chief drawback to the cultivation of anatomy in this country. When Hunter became a student, a new life was beginning to spread in the University. The old fashion of lecturing in Latin gave way, and newer, more direct modes of thought and expression infused fresh life into academic pursuits. Hutcheson, Cullen, Joseph Black, Hume, Adam Smith, James Watt, those in Scotland told of an upheaval in customary cherished opinions and modes. But whatever Hunter received in the way of influence in Glasgow, he carried away with him solid scholarship, which enabled him to master the MS. and printed volumes collected during later years. Harwood, in the first and third editions of his catalogue cites Hunter's comment on Theocritus, and it remains a puzzle why this was omitted from the second edition. Perhaps to this period belongs the influence which found expression in introductory lectures long after, when he insisted on style, good writing in every sense, instancing the letters which a busy practitioner has to write daily to patients and consultants. And certainly he acted up to his advice. The short notes prepared for his catalogue, the brief comments on works in his library, the narrative of his attendance on Her Majesty, are as exact in their precision as might be expected from him whose "fastidious accuracy" is noted by Cullen as causing long delays. His *Introductory Lectures* are the man himself:

elegant in language, copious in illustration, thoughtful in a high degree. Kindly and excellent in his advice to the young student whom he reminds that he must think of the future at a time when that future seems boundless in extent, unlimited in possibilities: at a period of life when errors seem unimportant in view of the vast time available for their rectification. The controversial papers which he deemed himself bound to write are weak spots in his life, strongly though they testify to virile force of thought and feeling. It is said that Smollett revised them; that seems needless save to guard against trivial errors, for they are manifestly the spontaneous effort of one. His brother, writing from abroad, compliments him on these pieces of bludgeon work. It was fraternal, but one regrets that the similarity of character between the brothers, to be referred to again, was so exhibited.

Hunter was early under the influence of one overmastering idea—to teach. That is announced in a letter to Cullen, not as a vague idea, but as if a well-arranged plan were already in his thoughts. The dominant notion was to teach Anatomy, in no restricted sense. He had a broad grasp, even at this time, of the unity to be carried through the scheme of nature, had already formulated in emphatic terms the belief in design which both brothers entertained. He began to lecture in 1746, and his labours only ceased with his life, which, indeed, his devotion shortened. In these thirty-seven years he established his reputation as the best teacher in this country, as he was the first. His care was to provide that his students had adequate supply of subjects for dissection, and that there should be also ample means of study in the museum, which he rated as only second to the dissection-room. On the preservation of illustrative specimens he early concentrated his energy, and, that there might be no delay in the provision, he associated with the work young men who had given promise of capacity. For five years prior to his lecturing he had systematically dissected, injected, and accumulated specimens, so that he had already a stock to put before his students. In 1748 he visited Holland, and carefully noted the results achieved by Albinus,

then the ablest in the art of injecting. Yet, highly as he placed the formation of a museum, he did not rate its functions too highly. He cautioned against the substitution of preparations for dissections, as he did against the notion that a short course of lectures would suffice. In fact he, first, had the zeal sufficient to commence a full course of instruction, and to encourage the students to take more than one course of lectures, for these were largely demonstrative. Jupiter Carlyle bears valuable testimony to his skill as a lecturer, for he and Principal Robertson had the benefit of a lecture on the eye, "one of the most clear, brilliant, and excellent lectures that we ever heard." And these were no mean judges. Gibbon attended his lectures, and made use of his scholarship and library as of Mead's. Adam Smith too attended and acquired the strong views on University monopoly which Prof. Smart kindly pointed out were embodied in a letter to Cullen. The scholars of such teachers (Hunter, Fordyce, Hewson, etc.) surely merit whatever honour or advantage much more than the greater part of those who have spent many years at some Universities.

Hunter was fortunate in the time of his arrival in London. The death or retirement of several leading obstetricians left the ground clear for him, and he was singularly fitted to make his way. A charming manner, elegant address, fastidious neatness in his person, he had every advantage over those who trusted to mere professional dexterity for success. He certainly gained, by comparison with Smellie, who neither in person nor manner seems to have had the gift of winning his way. At this distance of time, under wholly different social conditions, it is not easy to follow the careers of the Scottish practitioners in London. But Hunter triumphed over two great and grave drawbacks; he was a Scot, and, though not mean as an entertainer, practised a moderation strongly in contrast with the taste, at least the practice of the period. The man who thought one dish sufficient for dinner, did not allow more than two, and gave his guests two glasses of wine, content himself with one, was of no ordinary power or skill in drawing friends, for his table seems to have attracted guests, and

Carlyle gives a fair instance of the simplicity of the entertainment and of the peculiar charm of the host. "Hunter," he says, "was gay and lively to the last degree, and often came to us at nine o'clock fatigued and jaded. He had had no dinner, but supped on a couple of eggs, and drank his glass of claret, for though we were a club we allowed him a bottle of what he liked best. He charmed us with the brilliancy of his conversation. His toast was 'May no English nobleman venture out of the world without a Scottish physician, as, I am sure, there are none who venture in.'" The spirit of the toast is explained by Walpole's remark when disappointed of a card party by the unexpected confinement of the prospective hostess; "instead of receiving cards for assemblies, one should send in a morning to Dr. Hunter, the man-midwife, to know where there is loo that evening." Elsewhere Walpole's political and anti-Scottish feelings impel him to speak of Hunter as "the Scotch night man." These were probably effervescences of a literary coxcomb, bent on "smart" phrases for his correspondence, as about the same time he speaks of Hunter's kindness in occasionally calling to see him. In 1780 he records "Two mornings after they might have seen me receive Dr. Hunter, and a moment after Lady Craven, a man-midwife, and so pretty a woman are very creditable; and yet, alas, he came to talk to me about Greek medals, and she about a new comedy she is writing." These trivialities are of interest at a time when a bequest to a learned Society was cancelled by a testator because the secretary was a Scot.

In anatomical investigation Hunter justly claimed originality, for few had so keen an outlook on the union of anatomy and physiology. But he was not always justified in his claims of priority. There can be no question that his descriptions of the lymphatics far excelled those of his predecessors. But he did not assign enough credit to Asellius and others who had pointed out the way. At Hunter's day there was keen interest in the debate whether absorption was the work of the veins, or of the lymphatics, and William and John made experiments to try to settle the uncertainty. These were not convincing, but

William leaned to the opinion that the lymphatics were absorbents, and the sole absorbents. He, however, rejected the notion of inhalent vessels, an error founded on the supposed need for access of fluid to the interior of the canal which was to convey it. Long time was to elapse before the osmosis or the properties of cells in the vicinity of fluids should be recognised, though W. Hunter had clearly announced the excretory function of the sudoriparous glands. Microscopic observation, however careful and exact, did not suffice for the detection of the stomata on the peritoneal surface, and so we have another instance of the length to which an acute mind can carry the unaided vision, of the failure of that intelligence to complete the circle, incomplete by so narrow a defect. Only the ungraciousness of Monro's attack warrants, even in the slightest degree, the tone of Hunter's pamphlet; but it seems as if he did well to be angry. The thing was at best too trifling, but Monro's whole mode of dealing with the matter, and his hinted attack on other writings of Hunter's all had an air of determined aggression far in excess of the plea put forward. The preparations of lymphatics in the museum are of beauty and interest, and one regrets that they cannot be allotted individually to those who executed them. For not only was William interested in the investigation, but he enlisted the keen and continuous interest of his brother John, of Hewson, Sheldon and Cruikshank, the last of whom published what had not been made public before William's death. It was one benefit of the Monro controversy that thus exhaustively the question was studied and, in reply to the assertion that the lymphatics did not occur below the mammalia their presence was shown in fish, turtle, bird. The reverent terms in which their teacher is spoken of gives us a higher idea of his personal influence than we obtain from any other document, save perhaps the following letter which preceded the execution of the cup figured on the medal and exhibited in the museum:

"Sir,—We are now just entering into the World, are at a time of life which must determine our future Characters and our Success in it. We have ambitions as become us, and

our title to Fame is by no means ill-founded, having been your Pupils, if of such an advantage we have made a proper use.

"Desirous, then, of appearing Men of Consequence, yet conscious of our inability to rise on Merit all our own, we count the World's applause as Patrons of Ingenuity, and are attempting to build our Fame on a surer Foundation—by setting forth the Merit of Others. A Device this which we hope will meet with your Approbation and Countenance.

"With this View, permit us to presume so much on your friendly Disposition as to introduce to your knowledge Mr. Crisp, the Nature of whose visit will be better explained to you by himself than we can do it in writing. He will, by our Order, present to you one of his Performances, and if it should so far meet with your Approbation as to be honoured with a place on your Sideboard, he will at least have good Reason to believe himself safe from the awkward Censure of pretended Judges; whilst we shall have a certain praise-worthy Pleasure in having communicated to Posterity the Fame of a distinguished Character, Countenanced by your Authority. Our Patronage must have its Weight, as Numbers will crowd in to your Opinion and think it thus honourable to agree in Sentiments with Dr. Hunter.

"Here were it not for offending only you Sir, we might give, in drawing your Character, the fullest liberty to our Pen, without any Danger of being deemed Flatterers; But Cautious· to avoid every Danger of offending whilst our Ambition is to live in your Memory we curb even the Dictates of a grateful Heart. Think not, however, that We are Insensible of the many Obligations which you have conferred on Us, but do us the Honour to believe that it will be the anxious Endeavour of all of us to have deserved them: and permit us with all Respect, and with every good wish for your Health and Happiness, to subscribe ourselves, Sir, your much obliged and very humble servants."

Here follow the signatures of his pupils, whose "style" is as unmistakeable as its honesty. It is characteristic of the period, and agrees with the tone of the letter from Shippen, which tells us the part taken by Hunter in the

creation of the American medical schools. It has been said that that was a period of museums, the curiosity of people, educated and uneducated, had been roused, and could only be gratified by the collection of specimens illustrating the facts to which their trust had been given. Abroad Hunter had seen the collections of Albinus and Haller: at home Hans Sloane, Mead, Fothergill, Sandys, Falconer, and others had shown the reality of the spirit of which he saw the value—and the danger. For he warned against the risk of the teacher, by too much reliance on these aids, weakening his zeal for fresh specimens, concentrating his work on those things he knew he did well, and so forgetting that they were illustrations to be used for special points not for continuous teaching. While John Hunter's collection went to the Royal College of Surgeons, Baillie's went to the Royal College of Physicians, Hewson's microscopic preparations to the College of Surgeons, Cruikshank's to Russia; those on nerve repair are in Glasgow and the experiments have been further studied and extended by a more recent graduate, Dr. Kennedy. It is beyond possibility to identify many specimens as belonging to that or the other person: but this does not mean that the remark of a recent biographer is true or just, that Hunter claimed discoveries made in his rooms as belonging to him. The frequent references to his brother and others of his coadjutors, who owed to him the opportunity of so distinguishing themselves are answer enough to an unkind and unjustifiable insinuation.

Goodsir says, "Great as W. Hunter was, he is not to be considered as the leader of this period. He was rather to be considered as the head of the school from which great men emanated. He was the first to discover and in every way to understand and appreciate his brother John." His reverence for John tinges his opinion, but does not prevent him doing justice to William the discoverer of the great surgeon. Yet I would put in a word for the "middle man," as William is here treated. The steady perseverance of an intelligent pioneer not given to speculation, rather deprecating it, the curious instinct which points the way even in unfamiliar ground, and is content to record results with scrupulous regard to

accuracy, surely entitle the possessor to rank as a benefactor of science, above all when he has led the way by making opportunity for the prosecution of a study never heartily taken up till he had devoted himself to it: the pioneer is often more deserving of gratitude than he who does well on the new route, barren to him till explored by another.

William Hunter had other claims. He paid attention to congenital hernia discovered by Haller, whose account of it he received in 1755. Interested in the novelty he induced John to make dissections, a report of which William gave to his class the year following, evidently charmed with his brother's work. A pathological state dependent on the survival of a foetal condition could not fail to attract his attention, while Percival Pott's calm silence in the paper he published, regarding John's work, roused his wrath to the publication of a controversial philippic. He observed retroversion of the uterus and the paper he published elicited the regretful remark that had it appeared earlier lives might have been saved. The specimen illustrative of this condition is figured by Reynolds in the portrait in the Museum.

He published an account of the Aneurismal Varix, a traumatic lesion not uncommon in the days of phlebotomy but previously undescribed. To cardiac lesions generally he had given much attention, but strangely enough he has been credited with the opinion that cyanosis was the direct consequence of continued patency of the foramen ovale, an opinion which he had expressly disavowed. The point he made was that *the* lesion was not the patency of an aperture but the obstructed passage of the blood to the lungs and its consequent non-aeration.

It would not be wholly profitable to go over the numerous papers which he contributed to various periodicals and publications, more especially as an admirable account of them is contained in the most recent and trustworthy notice of him by Dr. Hingston Fox, whose Hunterian Oration of 1897 has been a labour of love, to which I am indebted on many points.

But one remarkable paper deserves note as an advance on the current opinions of the day, arrived at without the aids

which modern microscopy would have lent towards simplyfying the research. He gave a just view of the "Cellular Membrane" which Haller had spoken of as "the inorganic basis of our organized tissues," but which he described as "themselves active vascular tissues capable of increase and decay in every part." This was an opinion formed in connection with a case of anasarca, and he further states that fat is not lodged in the cellular tissue like fluid in an anasarca: the vital particles he affirmed to be lodged in the cellular membrane, but did not recognise their function or mode of operation. He did however show that, while anasarca was a passive condition of the tissues like traumatic emphysema, to be relieved by discharge from cutaneous punctures, sweat was a secretion which he rightly referred to the glands. Minor as these observations now appear they mark very distinct solid advances, less perhaps in the area than in the accuracy of anatomy.

The great paradox of William Hunter's life was his depreciation of Harvey's work. Much has been made of this, but needlessly. Hunter lived a century after the discovery—could not therefore realise the change which it had made in the thought of the scientific as well as of the medical world. Accustomed to research, knowing the possibility of a discovery being completed by a casual unexpected observation, he did not realise—as was true in his own case—that the slight point on which the completeness of the whole hung might be more difficult, might need a greater external stimulus, than all the other preliminaries. No one suspects Huxley of a desire to depreciate Darwin, yet he wonders how no one had hit the critical point of the theory which revolutionised science. But Huxley lived through the pre-Darwinian into post-Darwinian days, knew how the final achievement had been reached, above all knew the change, the gain. Next century may find those who have not had this advantage filled with wonder that aught so obvious had escaped so many keen interested thinkers: more likely is this if these, themselves contributors to the advancement of knowledge, shall be galled by the detraction of their contemporaries.

William Hunter made the process of foetal development a special study—he hatched eggs, obtained embryos at all the stages possible, noted all the miscarriages, by abortion and otherwise, which yielded the faintest hint. His preparations were in their turn profitable to a recent member of this University, Dr. Allen Thomson, who is associated with the study of Embryology in the 19th century as an early contributor by the article, "Ovum," in *Todd's Cyclopaedia*. Hunter early made a study of the anatomy of the Gravid Uterus, began the task 1751, and in 1775 published the work on which rests his greatest claim to the gratitude of succeeding generations. He demonstrated that the circulation on which the embryo depends for nourishment is duplicate, the maternal and foetal streams being ever apart, and that the tales of maternal death by hemorrhage from the cord were, in his emphatic language, lies. But he did more: by demonstrating the nature and anatomy of the foetal appendages he removed the process of reproduction from a morbid to the category of normal functions. He saw in the membrane lining the gravid uterus the equivalent of that which was normally present at the catamenial periods. It was no exudation of lymph, no suggestion of an inflammatory therefore abnormal product, but the normal lining membrane of the uterus modified to meet a special duty. He did not attempt to explain how the ovum became embedded in this layer, it is not explained yet: he was content with the appearance which occasioned the phrase *decidua reflexa*, and left the further problem to the future. What he saw and understood he told clearly, and nothing of what he told has been found wrong. Some things he failed to see, and erred in consequence: thus he said there was no allantois, an error which younger embryos would have saved him from. The same fatal limit to knowledge which left his comprehension of absorption incomplete was in the way of his understanding of the mechanism whereby the foetus draws nourishment: and even yet the microscopy of to-day fails to make clear the respective shares of the epithelial layers; but, at any rate, no one now need think of the foetus imbibing the amniotic

fluid. The felicitous comparison of the foetus to a plant, with its roots bathed in the fluids of the parent, is one of uncertain origin, at any rate its employment by Hunter shows how utterly he had in view the distinctness of the two streams. The preparations in the Museum attest the thoroughness with which the investigation had been planned and carried on. Yet this is the work by which he has suffered most in subsequent records. Coste is the author to whom in the first instance we are indebted for the correct presentation of his views. Left at his death incomplete, his MS. passed into Baillie's hands, and he "with diffidence attempted" to compensate the deficiency. Hence William Hunter has been made responsible for the opinion that the outer layer of the membranes is, in John's words, "an exudation of lymph from the vessels of the uterus due to the stimulus of impregnation." William's own words, in his introductory lecture, are "the internal membrane of the uterus which I have named decidua constitutes the exterior part of the secundines or after-birth: and separates from the test of uterus every time that a woman either bears a child or suffers a miscarriage." The vital connection of parent and child is not, as the other view suggests, "the incapsulation of a foreign body in the tissues." Matthews Duncan, who made himself the vindicator of William Hunter's reputation, has made this story abundantly clear, and by citing the works carefully, has removed every excuse save that of unscrupulous partisanship for the misrepresentation of the truth. The high position of Duncan in his speciality gives weight to his words, which are not those of an amateur, but of an expert who has examined the evidence, and who is in a position to enforce the statements of Priestley. But Hunter's *post-mortem* misfortune had a painful antecedent calamity. His brother John disputed his title to the placental discovery, and tried to discredit him before the Royal Society. Small as is now the possibility of getting at the truth, it is of importance that the Society declined to stir in the matter. John had held back his claim for 25 years, during which he must have known William's diligence in preparing his great work,

the main points of which he imparted to his classes. William's reply is dignified; that of John is not notable for courtesy and kindness. It seems strange that so much should be claimed of thirty-five years' work, and that of that part so much has failed to stand the test of time. William had followed from the earliest accessible stage after conception up to maturity, and made a consistent whole which was not broken upon at any point: the first step of John's assertion as to the provision for pregnancy is wrong, and such descriptions as he has left lack the completeness of a work which he said had so long engaged his attention. The confusion is not to be cleared up now; but the tone of John's last letter, the reckless way in which he surrenders the main contention, does not give the feeling of earnestness in his case, or it is a concession that he is not quite in the right in putting it forward against the brother who had attacked Percival Pott in defence of his, John's, rights as regards hernia, and who spoke of himself as "my brother's demonstrator."

Starting as a surgeon, he speedily directed his attention chiefly to obstetric practice, and, appointed in 1748 to the Middlesex and the British Lying-in Hospitals, benefiting by the retirement of several leaders in this branch of the profession, gained such rank as to be consulted regarding the Queen, and his attendance on Her Majesty during three successive confinements is detailed in a MS. in the Library, of which Dr. Teacher gave some account in the *Glasgow Medical Journal*, 1899. In 1764 he was Physician Extraordinary to the Queen, and fairly launched in the highest practice that the Metropolis could offer. But while surgery failed to secure him in a calling too painful to his feelings, he engaged in practice as a physician, and his papers in the *Medical Observations* show a singularly wide range of knowledge and grasp of principles. On this ground it is somewhat strange that remarks should be made as if his pathological position were inferior: as if that could be the case for a man to whom physiology was one, the normal, and pathology the other, the morbid aspect of anatomy—the man whose influence was ever given on the side of the exact

recording of all phenomena, who so well saw the only way in which medical science could hope for advance as to embody his view in the unmistakeable statement, "Were I to guess at the most probable future improvements in physic, I should say that they would arise from a more general and more accurate examination of diseases after death. And were I to place a man of proper talents in the direct road for becoming truly *great* in his profession, I would choose a good practical anatomist, and put him into a large hospital to attend the sick and dissect the dead." This anticipation is worthy of him whose work was carried on by Baillie. It is in harmony with his view that variations in structure, abnormalities even, take their place in the scheme of nature, which, "in varying and multiplying her productions, has hung out a train of lights that guide us through her labyrinth." To him comparative anatomy was an aid in finding the meaning of parts not at first recognisable in the human body.

He examined, and with usual thoroughness got full particulars regarding, the remains found in America and elsewhere, and determined them as not of the true elephant but of an allied animal. Consulting dealers and finding that the substance in his hands was true ivory, he expresses the view that ivory might be produced by more than one animal. The teeth were not the same as those of the elephants he inspected, but, in consultation with his brother, whose paper on teeth he had published, he regarded the mastodon as carnivorous, an opinion which was formed by others, if we are rightly informed, on the similarity of appearance to the lower jaw of the hedgehog. Every one who had something unusual brought it to Dr. Hunter for his Museum; hence he receives papers on things dredged in the English Channel, etc. The careful enquiries addressed to the American finders of the mastodon remains are an example of exact search after accurate facts; but Darwin mentions a more remarkable investigation, one undertaken at a time when universal belief seemed to render the enquiry uncalled for. All the patients at the Lying-in Hospital were asked on admission if there were circumstances which in their mind were likely to have affected the child. It was found that there was no

foundation for the notion that maternal imagination affected the offspring; but when the mother, after delivery, had the peculiarity explained to her, she always could give some explanation more or less appropriate.

The distinguishing feature of Hunter as an obstetrician —perhaps it would be better to say as a practitioner of medicine—was his steady advocacy of the power of nature against the *nimia diligentia* of professional men at that time. Indeed, it may be said that his wise caution had in some ways become unduly exaggerated. He recommended care in dealing with the after-birth, deprecating forcible removal, a frequent cause of inversion. He spoke more strongly than was just in deprecation of the use of the forceps, and so great was his influence that many years elapsed before the true medium was arrived at regarding their use. Less just is the blame attached to him because of his attitude towards the Symphysiotomy. However, he has had ultimate vindication in the disappearance of the operation. His attitude was the consequence of having seen the result of natural conditions, and he justly says, Why drag apart one of the strongest joints in the body, an operation requiring the use of extreme force, for the sake of the gain of an infinitesimal space? The gain is so slight, and the evil effects so certain and so grave, that the safety of the patient warns against, if it does not actually forbid, the operation. This anxious solicitude for the patient is not the only illustration of Hunter's natural kindness. A paper printed in the *Medical Observations* after his death, "On the Uncertainty of the Signs of Murder in the case of Bastard Children," is well worthy of perusal, as telling much of the man—full, detailed in reasoning, careful in the balancing of evidence, above all animated by a benevolent anxiety to make clear that those who are exposed to such a sad ordeal shall have every element of caution exerted in their behalf, and she who at such a crisis, little able to defend, scarcely fit even to think about herself, shall not be left a victim of prejudice or hasty censure. The picture drawn of the victim to whom, in the instability of mind incident to her sex under such conditions, momentary

temptation to crime offers the sole apparent escape from an agonising and hopeless trial, even ruin, is one which does credit to Hunter as a physician and as a humane friend of patients thrust on his pity, of whom it becomes not man to set up as judge.

The indications here and there of "*ahnungen*" of deeper problems in zoology arising out of his anatomical observations are frequent. The investigation of Malformations of the Heart brings forward the thought that certain teratological conditions are arrested early stages, the unlucky possessors being unfit to carry on the succession, in the language of the following century, the survival of the fit being secured by the inverse operation, the disappearance of the unfit.

The treasures of the Hunterian Library are such as that I dread prolixity in referring to them. That catalogue which would enable others to sympathise with and to judge of my pride as the custodier, the impecuniosity of the University forbids it to print. Mss. there are, more interesting because of their inherent interest than of their rarity or provenance. In the Printed Books there are many interesting groups, some collections dealing with departments of medicine, others classical, and, strange to say, many works of early theology. Obstetrics offer the books of Eucharius Rhodion, Woolveridge, Mauriceau, Chamberlen, down (in chronology) to the writings of his contemporaries. Mundinus heads a list which includes Fabricius, Morgagni, Vesalius: there are original drawings by Stephen von Calcar, by Berettino, by Cowper (the Bidloo edition is present also): the plates for Cheselden, for Douglas, for the Gravid Uterus, and a host more are mixed up with receipts for Hogarth's works, Roger's drawings, sketches for the *Phil. Trans.* by Parsons and others who had been enlisted by Hunter in the delineation of special subjects. Illustrated books, dependent for their value on the illustrations, abound, some in exceptional state, from the Hypnerotomachia to Gravelot and Eisen (not omitting the Dutch piracies). The numismatic cabinet has not been forgotten, for Hunter was more than a collector of curiosities, he was an archaeologist to whom the value of an object lay in the historical information

it gave or suggested. Archaeology was a department of history for him, as it is to all of sufficient age to understand historical methods. In a period given to the formation of fine libraries, W. Hunter formed one of historical as well as of personal and professional interest.

I am happily saved from saying aught as to the Coin Cabinet. Mr. George Macdonald has laid exact scholarship under obligation by the Catalogue which the wise generosity of Mr. Stevenson has enabled him to prepare, a partial fulfilment of the Senate's duty to give account of all Hunter's possessions. Medical men will have recognised my obligation to Dr. J. H. Teacher for the Catalogue of the Anatomical Preparations, for which the Bellahouston Trustees have provided the necessary funds. In connection with Dr. Teacher's work, I should say that he has done the part of a conscientious editor, retaining as far as possible the words of his author; and thus he illustrates the justice of Brodie's remark, "I am greatly deceived by my juvenile recollections of it if I am not justified in asserting that the publication of it, the Catalogue, even at the present time, would be of the greatest service to the profession." How correct was his juvenile recollection may be seen now, though Dr. Teacher had to omit a great deal which the old nomenclature rendered well-nigh unintelligible. It is matter of satisfaction that the collection is now thoroughly revised, refreshed, and ready to last for a long time in as good condition as in its founder's day: to him and to the modern benefactor the thanks of the University are due.

There are still ways of further discharging our duty of gratitude to Hunter. When the University shall have the means to carry out all that gives completeness to the doings of such an institution, it will be possible to provide catalogues of all the collections which, bequeathed by Hunter or gifted since his death under the stimulus of his taste and example, form the "Hunterian Museum." The minerals, of which partial description dates back to the early years of last century, are now a valuable aid to teaching. With the experienced and accurate help of Mr. G. R. Thompson there are now a museum group, a series for exchange, and, most

important, a series for the practice of analysis, which, under more favourable circumstances, it will be an essential part of the duty of the University to provide in this city of mineral wealth. The zoological stores will supply a good foundation for an illustrated catalogue far beyond the original resources of the bequest, but not beyond the spirit in which the utility of the collections was looked at. The private collector who regards his horde as a trust for the public, who having withdrawn from his account money intended for extension, is uneasy until the money is repaid, does not take his place as a collector but as a public benefactor, who, knowing a public want, prepares to supply it, not announcing his intention till he sees his way clear to fulfilment. He began to create a museum for his students, he ended by fitting it out for the benefit of all the students in all the faculties of his old Alma Mater. Zachary Boyd's gifts were for the magnification of the library, means of enlarging the usefulness and reputation of the University, not like the more pretentious bequest of his contemporary, Snell, which has created the impression that this is a public school whose pupils might be rejected elsewhere at discretion. Hunter took precautions that those in whom he was interested should not suffer by his benefaction to Glasgow. Baillie was to have the use of the Museum, an indispensable possession for one who had only his success as a teacher to depend on, and though the rapid growth of his practice soon made him safe on this score, it was well that he had a guarantee, for some arrangements seem to have been in contemplation which only his tenancy ended as he desired they should.

More striking is the bundle of letters appended to the Introductory Lectures, from which it appears that Hunter spent time and money in finding the best site for the Medical School which he proposed to build, endow with his museum, himself giving the needed courses of lectures so that the improvement in the teaching of Anatomy which he had initiated in 1746 should not be sacrificed. But he met the usual official treatment: sent from pillar to post, waiting for months for a reply, in communication with clerks, and finally giving a short respite after which his responsibility was to be finally

at an end. This was not the only scheme he had in view: he had at one time thought of starting a school in Glasgow in association with Cullen: in 1765 he records, "I have a great inclination to do something considerable at Glasgow sometime or other." When there was negotiation with Baillie about the collection, it became apparent that the University was chiefly interested in the acquisition of the Anatomical Department, less concerned about the Library and Coins, probably foreseeing the difficulties in dealing with, at least, the latter. The University record well says that "the College of Glasgow in accepting the custody of the Anatomical Museum must be held by the public to have at the same time undertaken the guardianship of his scientific reputation."

In that spirit I accepted the duty imposed on me by those in charge of this celebration. I have endeavoured to set before you the grounds on which it seems right to claim for William Hunter grateful memory and scientific admiration. As a discoverer he has done service, while his descriptions of what was already known have rendered them almost new, and the wealth of collateral knowledge used in their illustration raised them into literary successes. As a physician he earned high rank among his contemporaries and added much to sound practice. In obstetrics, his special field, he based the practice on sound views of the anatomy of organs and of accessory structures, such as had never been dreamed of. Nor were these rash speculations or impulsive fancies for which verification had to be sought, they were the winnings of long years given to the prosecution of research when facilities for such research were neither common nor easily made use of. The nutrition of the foetus was an enormous advance on the knowledge of the day, and was in its way supplemental of the Harveian gift to science. But his influence for good was exerted also in other ways; the high position which the scholar and man of taste merited was beneficial to the profession, and has redounded to the credit of the University which became his heir. And that succession it could accept without hesitation. The purpose

for which the collections were formed was definite; anatomy was the key note. And precautions were taken that his nephew, whom he treated as a son, should neither be harassed nor impeded in the tenancy designed to him, no injury was done to kin, nor to science, but the ultimate benefit of the gift to the youth of following generations was distinctly in view. And if that benefit has been slow in arriving, if some portion of it is still in promise, I trust that a better knowledge of what the University possesses and what it lacks the means of putting in the hands of a still wider circle (for Hunter had no limited view of the audience to be brought within the influence of his labours), I trust that thus the friends of the University and of learning will, as has been done in the case of the coins and of the anatomical preparations, enable the administrators of the bequest to do for it what William Hunter, had he survived, would have striven to accomplish.

After this most interesting oration came an organ recital, by Mr. Harold Ryder, of an exceptionally well-chosen and well-executed character. It included three overtures—Tannhäuser, Zampa, and Oberon, besides, among other pieces, Bach's Tocata and Fugue in D minor, and a much admired fantasia on Scottish airs by Dr. Peace, formerly organist to the University.

RECEPTION AT ART GALLERY.

IN the afternoon the directors of the International Exhibition placed the Art Galleries at the exclusive disposal of the University between the hours of three and five, and about 2000 graduates and guests took advantage of their kindness, and enjoyed a leisurely inspection of the magnificent collection of pictures and works of art.

BANQUET BY CORPORATION.

IN the evening at 7 p.m. the Corporation of the City gave a banquet in their marble halls to a party of over 400 guests, the great majority of whom were members of the University.

The Lord Provost occupied the chair, and Senior Magistrates Cleland and W. F. Anderson were croupiers at the Lord Provost's table.

Right and left of the Lord Provost were seated—The Very Reverend Principal Story, Vice-Chancellor of Glasgow University; the Marquess of Dufferin and Ava, K.P.; the Earl of Glasgow, G.C.M.G.; the Count Franqueville, Count D'Alviella, Lord Kelvin, Lord Reay, Lord Lister, Lord Strathcona and Mount Royal, Lord Inverclyde, Right Hon. James A. Campbell, M.P.; Lieutenant-General Sir Archibald Hunter, Commanding the Forces; Sir Richard Jebb, M.P.; Sir James King, Bart.; Principal Marshall Lang, Principal Rainy, Principal Donaldson, Sir James Reid, Bart.; Sir John Muir, Bart.; Sir T. D. Gibson-Carmichael, Bart.; Sir James Bell, Bart.; Sir Henry Craik, the Lord Provost of Edinburgh, the Lord Provost of Dundee, Principal Carey Foster, Sir Robert S. Ball, Sir William Turner, Hon. C. Tower, American Ambassador, St. Petersburg; Sir Lowthian Bell, Sir Dyce Duckworth, Sir W. T. Gairdner, Professor Brissaud, the Hon. Justice Shephard, Sir William Church, Sir J. Neilson Cuthbertson, the Provost of Oriel; Rev. Dr. M'Adam Muir, Sir John Williams, Bart.; Sir H. Gilzean Reid, Sir Philip Magnus, Sir Hector C. Cameron, Sir Wm. Roberts Austen, Very Rev. Dr. Donald Macleod, Sir T. Thistleton Dyer, Dr. Lauenstein, Principal Reichel, President Loudon, Sir Archibald Geikie, Sir J. Crichton Browne, Sir W. MacCormac, Sir John Cheyne, Sir J. Wolfe Barry, Sir Francis Powell, Commander Deverell, R.N.; Colonel Dobie,

commanding the garrison; Colonel Jerrard, Chief Staff Officer, Edinburgh; Colonel Trotter, Principal Bodington, Rev. Dr. W. Ross Taylor, Rev. Professor A. R. M'Ewen, D.D.; John Wilson, M.P., St. Rollox; President Adams, President Hamilton, Principal Peterson, Principal Hector, Principal Mackay, Professors Ramsay, Hastie, MacEwen, Jack, Glaister, Gray, Adamson, Robertson, M'Call Anderson, Cleland, Cooper, Young, Murdoch Cameron, Ferguson, Bower, Stockman, M'Kendrick, Barr, Biles, Moir, Raleigh, Stewart, Gemmell, Medley, Muir, Smart; Professor Angellier; Dr. Alexander Murray, Rev. President Greene, Professors Ellison, Egoroff, Joret, Traill, Apathy, Barkan, Smoluchowski, Wicher-Kiewicz, Loutchitsky, Pozzi, de Magalhaes, Nerinex; Dr. Yellowlees, Principal Douglas, D.D.; Sir Robert Pullar, Principal Morel, Charles Russell, LL.D.; John Inglis, LL.D.; Dr. Charles Douglas, M.P.; Alexander Cross, M.P.; Principal Hopkinson, William Jacks, LL.D.; Dr. James Finlayson, Dr. J. M. Taylor, Colonel Robert King, Principal Hicks, Principal Morrison, Preceptor Gray, the President of the Consular Corps (Mr. Agar); Dr. D. C. M'Vail, G. Handasyde Dick, Professor Macalister, Professors Ogston, Dewar, Dobbie, Nasini, Naville, Davies, Witkowski, Briggs, Fraser, Gautier, Velain, Morel, Baldwin, Schück, Henri Becquerel, Audibert, Barbeau, Bezold, A. Crum Brown, Rainaud, Mourek, Weiss, Ciamician, Benoist, Maury, Mahaim, MacGregor, Black, Thomson, Wiesner, Geikie, Hubrecht, Lamb, Mumford, Meyer, Walker, Morton Dexter, W. R. Smith, Rossier, Beljame, Bisbee, Seymour, Delaney, Ribbing, Schelling, Raymond, Sakurai, Iijama, Dukinfield, Scott, W. R. Lang, Strong; Messrs. John S. Templeton, Hugh Brown, J. D. Hedderwick, J. T. Tullis, J. G. Kerr, LL.D.; Stewart Clark, M. Simons, Leonard Gow, W. A. Donaldson, C. R. Dubs, J. G. Dunlop, George Beilby, Jules Coste, James Mann, J. C. Mitchell, Mark Bannatyne, Dr. Crawford Renton, Henry Barr, Walter Macfarlane, William Wallace, LL.D.; Thomas Reid, M.D., LL.D., Michael Graham, M. Lodijensky, W. R. Copland, Professor H. E. Clark; Dr. Collins, London; Provost Kirkwood, Provost Wood, Provost Gray, W. D. Black, James Brand, Sheriff Fyfe, David Wilson,

David Rennie, John A. Blackie, United States Consul Taylor, Alexander Rose, David Murray, LL.D.; P. S. Dunn, Joseph Patrick, C.A.; A. H. Pettigrew, J. Dalrymple Duncan, Rev. Dr. Jervis Coats, Colonel Reid, Colonel Mackenzie, J. J. Burnet, Thos. Johnstone, R. R. Ure, Nathaniel Dunlop, Matthew Greenlees, George S. Buchanan, Dr. Elgar, and others.

After dinner, the Lord Provost gave the toast of "The King." He said he rose to give that which was always the first toast on their list. The time would doubtless come—but it was not come yet, and he for his part did not long for its coming—when they would be able to dissociate that toast from a name which was still cherished with warmest love and reverence. In spite of themselves, they still seemed to see behind that toast a venerable form which wore the shadow of a kingly crown. But loyalty was second nature to every British subject, and was very easily fanned into a perfect passion of patriotism. They regarded the King not only with the personal regard which was his due, but they looked upon him as the crowned apex of this splendid fabric of the British Empire. Accordingly this toast evoked the deepest sentiment of patriotic hearts, and so with unfaltering confidence he asked them to rise and drink the health of His Majesty the King.

The Lord Provost next gave "The Health of Her Majesty Queen Alexandra, the Duke and Duchess of Cornwall and York, and the other Members of the Royal Family." He said that Her Majesty Queen Alexandra, sharing as she had so closely done the simple homely life of the late Queen, had won in her stead a place in the hearts of all her subjects, from which it was simply impossible she could ever be dislodged. We rejoiced to think that her eldest son and his bride, the Duke and Duchess of Cornwall and York, had already entered upon the discharge of what might be fitly called Imperial duties, and in the discharge of these had undertaken so lengthened a voyage to the distant parts of this world-wide empire. It had gladdened our hearts to see the manner in which they had been received by our fellow-subjects in all our distant

colonies and dependencies, and we did not doubt that that, along with other things, would have contributed, and would continue to contribute, to the cementing together of the various parts of our vast British Empire, which more than ever would make it one and indivisible. In proposing that toast he could well speak from that chair, because Glasgow had had visits from more than one of those who were included within its designation. Her Royal Highness Princess Christian did them the honour to open Ruchill Hospital, and Her Royal Highness the Duchess of Fife lately honoured them by coming, in the King's stead, to open their great Exhibition. All those instances of Royal regard had only drawn out more fully the hearts of the citizens of Glasgow to the Queen, the Duke and Duchess of Cornwall and York, and the other members of the Royal Family.

Sir James King, Bart., proposed "The Houses of Parliament," a toast which should at all times receive every honour. But he thought it was especially interesting that night, because they were the guests of the local Parliament of that great community. That was a body which did not fear work. The variety of subjects which engaged their attention was greater than he could enumerate, but the heaviest task was always cheerfully undertaken, and they yielded not even to the Houses of Parliament in zeal for and attention to their business, and in cherishing the interests committed to their care. They would seek in vain for assemblies more august, more venerable, or more powerful than the House of Lords or the House of Commons. The House of Lords comprised within its members men renowned for learning, men of consummate eloquence, men possessed of the noblest parentage, and their ranks were recruited from time to time from the leaders of the legal, the medical, and the military professions. They did not waste much time in debates; their work was quickly and well done. Some years ago they heard a cry for reform or alteration, but that had died down. The cry was ended, and the House of Lords still remained. He thought that there was not likely to be any hasty legislation in that

direction; but, whatever might happen, we might be sure of this, that we would never be without a second Chamber, and it would be difficult indeed to eliminate the hereditary principle of the second House, as long as we had a hereditary Monarchy. The House of Commons was in every respect a popular assemblage. It was in touch with the people, and in touch with the great municipal bodies throughout the empire. If the people were not pleased with the conduct of their business, they had the opportunity at intervals of a few years of completely altering the *personnel* of the House, they might even go so far as to transfer to other hands the management of the country. But whatever might happen, we might be sure that no party had a monopoly of patriotism, and the House of Commons in the future, as in the past, would have its decisions regulated by love of country, by honesty, and by justice.

He had the privilege of coupling the toast of the House of Lords with the venerable statesman who had honoured them with his presence that night; he meant the Marquess of Dufferin. His Lordship had been the trusted representative of his Sovereign at almost every Court in Europe. He had, in succession, filled the high office of Governor of the Dominion of Canada and of the great Empire of India. But Sir James thought that what specially interested them, that night, was the fact that his Lordship was so much in touch with the universities and with the university life of the country. His Lordship had the distinguished honour of being Chancellor of the Royal University of Ireland; he had been Lord Rector of one of our Scotch universities, and he had received at the hands of Glasgow University the degree of Doctor of Laws.

With the House of Commons he had great pleasure in coupling the name of his friend the Right Hon. James Alexander Campbell, a native of Glasgow, and a gentleman whose love for his native city would never grow cold. Many years he devoted to educational and philanthropic work, and during the last twenty years he had been the trusted and useful representative of the Universities of

Glasgow and Aberdeen. He thought they were specially fortunate in having names so honoured as these to couple with the toast, and he gave it accordingly, coupled with the the Most Noble the Marquess of Dufferin and the Right Hon. J. A. Campbell.

Lord Dufferin, who was received with loud applause, said he was deeply sensible of the honour which had been conferred upon him in being appointed to answer for the House of Lords on the present auspicious occasion. But he could not but feel that the office would be much more worthily discharged by one of his brother Peers whom he saw around him. For, he was sorry to say, that in consequence of his long absence on the public service, it was 30 years since he had the privilege of taking part in the proceedings of that illustrious assembly, and what was a still more melancholy reflection, so far as he himself was concerned, it was 50 years since he had the honour of joining its ranks. Since then a great many things had happened; a great deal of water had passed under the grating.

In the early days many people complained that the House of Lords was a semi-feudal assembly, representative of only a single interest, and that it brought continually pressure to bear upon the march of public events, and that although that pressure was frequently ineffectual, at the same time it was an influence which successive Governments had to reckon with. Moreover, its attitude was in a great measure antagonistic to those great economic reforms which were inaugurated by Sir Robert Peel, and which were subsequently elaborated by Mr. Gladstone, as well as many of the measures of that distinguished statesman. As a result there was no doubt that in many quarters the House of Lords had become unpopular, and he was sorry to say that it lost the confidence, and that it was chastised by the animadversions, of its own brightest ornament and Scotland's most distinguished son.

In the meanwhile, however, the interests of the country were becoming rapidly liberalised, and naturally the House of Lords did not stand remote from the influences by which it was surrounded. It was thus subjected to changes both

in its own composition, and also in its relationship to the conduct of public business. It received many notable and useful acquisitions to its numbers from various sources, which happily put it more fully into sympathy and into touch with the various phases of the national life, and it might now be said to embrace within its bosom representatives of every matter of intellectual effort and of industrial enterprise, from poetry to beer, from the highest elements of scientific research to the humble details of domestic sanitation. Moreover, it had learned to exercise its constitutional prerogative with greater reserve, though, he was happy to say, when occasion demanded, with unabated courage, and as a consequence he did not believe that the House of Lords ever stood in a better odour with the nation at large than at the present moment.

There was no portion of the British Empire which had contributed more powerfully to this satisfactory result than the kingdom of Scotland, inasmuch as there was no topic, which could become the subject of discussion or legislation, upon which there would not be found an eminent Scottish Peer to pronounce with authority and acceptance. If they turned to the world of science, where should they find a nobler champion than our dear Lord Kelvin? If they turned to medicine, who was more eminent than Lord Lister? If they had to encounter educational problems, where should they go for advice or recommendation with more confidence than to Lord Reay? If they went to the mercantile marine they had the late Lord Inverclyde, the mantle of whose knowledge, industry, and intelligence had, he was happy to say, fallen upon his son. If some question of chemistry or the extracting of some material of commercial importance arose, then they could appeal to Lord Overtoun. If they wished to learn something about the affairs of our colonies he would recommend them to ask the advice of their own distinguished Earl, and they could also appeal to their patriotic countryman, Lord Mount Royal. Lastly, there was that eminent individual, whom history would record as the greatest and the most judicious patron of human learning—Mr. Carnegie—whom his brother peers

would only too gladly welcome to the gilded chamber, if the United States would enter the Pan-Britannic Federation.

An eminent statesman once said that the House of Lords were up in a balloon. Modern strategy had proved that a balloon was by no means a bad coign of vantage from which to appreciate the elements of a critical situation. It might very well happen that, elevated above the dust of combat, liberated from the prejudices and animosities which were engendered in the daily strife of party conflict, and also unembarrassed by the eccentricities of their countrymen, the House of Lords might appreciate with greater justice the true interests of the people and their inflexible determination even than the House of Commons.

Mr. James A. Campbell, in replying for the House of Commons, said his only title to this honour was that he was the member of the House of Commons most closely identified with the University whose celebrations they were now engaged in. As to the House of Commons, they had heard something within the last few days. They had heard that in the time of James Watt the House of Commons could only be described as a great number of wrongheaded people. He would not dispute the accuracy of James Watt's impressions of what he had observed, but he hoped there had been some improvement since that time. They had often been told that the House of Commons was what the people made it. He believed that the House of Commons had improved, and the people had improved, since those old days. The House of Commons was elected by the people, and reflected the opinions of the people. It had been found in the past, and he trusted would always be found in the future, to serve the country with sincerity and honesty of purpose.

Might he be excused for saying a single word on the relation of the House of Commons to the University, as they were gathered together in connection with the University? They looked to the House of Commons to inspire and control the policy of the Government of the day. They all held that the State or the Government had a duty in the interests of the public to encourage and promote the

higher education. The present meeting was a proof that that duty was recognised by the municipality of this city. Would that banquet have been held, would the hospitality of the municipality have been extended to the many visitors to the University at this time, if it was not felt that the interests of the city, as a city, were identified with the prosperity of the University? What was true of the city was true of the country as a whole. The promotion of the higher education was a national concern. That was not denied either by the Government or the House of Commons. No doubt they were disposed sometimes to complain that more had not been done, but let them not be ungrateful for the large measure of what had been done towards the fulfilment of that national duty; and they trusted that in the future yet more would be done. As the demands of the universities increased, demands arising from their larger requirements, they could not doubt that the Government—that was the House of Commons—would give the necessary encouragement and assistance. Let the universities only show that larger educational appliances were needed in the public interest, and that they themselves were doing their best to meet that larger demand. That suggested to him to add that the munificent gift, which Mr. Carnegie had just made, was not intended to have as its effect to diminish their individual efforts and sacrifices for the promotion of university education. On the contrary, it ought to give them a stimulus and encouragement; and so in like manner all their private local contributions to the cause ought to give force to their appeal to the Government for its co-operation, when such co-operation was necessary for the attainment of an object so essential to our national prosperity.

The Earl of Glasgow said he considered it a very high privilege to have been called upon to propose the next toast—namely, "The Imperial Forces." That was an old friend under a new name; they had all been accustomed for many years to the toast of the "Navy, Army, and Reserve Forces." He thought they had to thank the Lord Provost for the more appropriate title. In the war which

it was our unhappiness to be waging at this time it had been proved that the Reserve forces—the Militia, the Volunteers, and the Yeomanry—had come to the front and done their duty in the field, in the same manner and under the same auspices as His Majesty's ordinary forces. We had sent 200,000 troops over a distance of 6000 miles by sea. Never before had such an event taken place in warfare, never before had we seen a force maintaining such enormous lines of communication, never before had we seen such a force of mounted men in the field, never before had such a campaign been waged since the introduction of modern weapons of precision. As in former wars during the last 50 years, the Navy had performed its part. The whole of the forces—the Army, Navy, Volunteers, and Militia—had done their duty as British soldiers. He could not help saying that he thought the late President of the Transvaal had been a great benefactor of this country. It was during this war that we had seen the colonies come to our assistance, in a time when we had not sufficient men to put on the lines of communication. In fact it had brought to our notice what we perhaps had never thought before, that as Cadmus in sowing dragons' teeth brought armed men from the ground, so Great Britain by establishing colonies all over the world had produced a number of armed nations which sprung to her side when she required them. In conclusion, he congratulated the Lord Provost for having present General Sir Archibald Hunter, whom he asked to respond to the toast.

Lieutenant-General Sir Archibald Hunter, who was received with prolonged applause, said the enthusiasm with which they had received the toast of "The Imperial Forces" compelled him to form certain conclusions. The first was one on which all might congratulate the Lord Provost in having selected Lord Glasgow to propose the toast, because he was not only an officer who had the right to write Captain of the Royal Navy after his name, but there was no man better qualified to give a true expression of the word "Imperial" than himself. He had been the Queen's representative in New Zealand, and among our colonies

New Zealand could always hold its head high, in having sent quite as valuable contingents of fighting men to South Africa as any of her sister colonies. One other conclusion which he might draw was that in an assembly of the citizens of the second city in the Empire, one might easily suppose that they realised the value of the Empire. They practically told him that conclusion was right. Then, if it was so, he believed they realised the necessity of having an Imperial force of adequate strength and efficiency to safeguard their interests in so many quarters of the globe. The Secretary of State for War and the Secretary of State for the Admiralty, and the officers of the sea and land forces, would guarantee the efficiency of the forces, but their adequacy lay with the people of the country. Further, he believed that there was a strong military element in the West of Scotland, and he hoped he could rely on their support in bringing the prospective army corps in Scotland to the highest possible state of efficiency.

The Lord Provost proposed the toast of "The University of Glasgow, and Congratulations on Attaining its Ninth Jubilee." He expressed the deep pleasure, he might say the pride, with which the Corporation of Glasgow received under its own rooftree the honoured representatives of their own venerable University, and those distinguished representatives of other seats of learning who, from far lands, had turned their pilgrim steps to that northern shrine, and had made this celebration of its 450th birthday a day unparalleled in the annals of Scottish Universities. The Corporation of Glasgow had been an interested spectator of these unique and most successful celebrations in which they had been engaged. It had looked on them, it had mingled with them, with feelings of most pleasurable and pardonable pride.

The Corporation was frequently complimented on what its friends called its municipal and social progress. They were often complimented as a city on their commercial importance and on their shipbuilding supremacy, but the Corporation had never forgotten, and he trusted it never would forget, that the greatness of their people rested upon

their intelligence, their industry, and their moral and spiritual force, the moral and spiritual force of their sons and daughters. They regarded as a most important factor in building up the greatness and strength of their people the operations of their great University. On Wednesday last, when that almost interminable line of addresses was being presented, they seemed to hear innumerable voices talking in many languages, each bearing unequivocal testimony to the fact that, in spite of its age, their venerable University was still a mighty power for good, and was pulsating its influence to the remotest ends of the earth.

Their University could look back on a long and most honoured and honourable history. Time and again, through all the generations, its chairs had been filled by men of more than European reputation, who had carried its name and the name of the city which it wore, to the furthest ends of the earth. And yet, after all, he was not sure that the time test, by which the greatness of a University was to be ascertained, was the greatness and the reputation of its professors. A professor was only the instrument which a University employed in order to do its work, and the question was not about the instrument, but about the work that the instrument performed. The question was not, how great were the professors, but how well was the work of the University discharged. The work of a University was to turn out good men, capable men, men fitted to carry on the work of the world, and to lift it up to a higher, nobler, and purer plane; men inspired with the love of truth and the love of knowledge, that knowledge which John Ruskin said "is of virtue: only, vice and baseness Hecate teaches, not Athene." They were glad to think what the University had done in this direction, a direction in which it had no reason to be ashamed. Again and again men who were trained in Glasgow University occupied positions of influence and honour in all parts of the world. The University was justly proud that for many years it had Lord Kelvin as one of its professors. But the University had more reason to be proud of the fact that it had Lord Kelvin as one of its students. It could point to him not only as a man who

taught in its chairs, but one of the men who were produced in its class-rooms. To that work, doubtless, the University would continue to address itself.

The University must not live on its past. It was grand and inspiring to have a noble past, but the institution that lived on its past had passed the time it ought to live. There was work to be done in the future equal to or greater than any that the University had discharged in the past. The people were just awakening—they wished the people were fully awake—to realise that the treasures of knowledge were theirs. It was for the University to deal out these treasures with a large and liberal hand. Learning never made a man or a people the worse of having it. It was the true enriching of the heart and life of the people. He regarded it as a singularly happy circumstance that, at a time when there was coming over us a kind of dim consciousness that we had been somewhat remiss in the past, that if we had not grown lax in the pursuit of the knowledge we had grown rather remiss in the practical application of the knowledge we possessed or might possess, there should be laid at the door of the University a benefaction such as that to which Mr. Campbell had referred—a benefaction unparalleled in the history of the benefactions of the world. They all joined in the hope that that might be to the Universities and to the people of the land an unmixed blessing. He coupled the toast with the name of Principal Story, who was too well known to need any eulogy. He believed that the thing nearest the heart of the Principal was the welfare of the University, and, through the University, of the people of Scotland.

Principal Story said he felt that the great cordiality with which they had received the toast which his Lordship had so appropriately proposed was not in any way personal to himself, but was a recognition of the marked success of a very unique and interesting celebration—the celebration of the 450th year of the creation of the University. The unquestionable success which had attended the celebration was chiefly due to two of his colleagues—Dr. Stewart, Clerk of the Senate, and Dr. Glaister—who had had the chief share

of the arrangements. The self-sacrifice of these gentlemen had been rewarded by assurances from all parts of the world of sympathy with their efforts. Since he sat down to dinner he had received the following telegram: "Respectful greeting to the venerable University.—Fridtjof Nansen." There was on its way from Rome a message from Pope Leo the Thirteenth, the successor of Pope Nicholas the Fifth, bearing his good wishes and congratulations to the University which Rome had founded in the year 1450. Such messages were encouraging, as showing how universal was the feeling of brotherhood binding all classes of society and all varieties of religious and political opinion, when they got together upon the common ground of learning, of science, and of art. There were two most interesting features at the graduation ceremonial. The first was the presence of three illustrious representatives of the University of Glasgow. There was Lord Kelvin, who was still connected with the University by being Dean of the Faculties. There was Sir Joseph Hooker, the veteran prince and leader of botanists. There was Lord Lister, who had done more than any man of his generation to brighten the lot and lessen the burden of suffering humanity. Each of these was a son of Glasgow. Sir Joseph Hooker was a son of the late Professor of Botany. Lord Kelvin was brought up from his boyhood in the University of Glasgow, and Lord Lister made his most important discoveries while he was one of their professors. The other striking incident was when a gentleman, not outwardly noticeable, came forward to receive his degree, and he (Principal Story) laid his hand upon his head. As he did so he did not know what Mr. Carnegie's feelings were, but he felt that he was laying the hand of the University, on a capital of £40,000,000.

He had been tempted to fear that the noble donation of the owner of the 40 millions might tend to dry up the sources of local and private benefactions; but he was agreeably disappointed when, two days after the announcement of Mr. Carnegie's gift, he received from a merchant in Glasgow a cheque for £5000, and he was still further delighted when to-day he received another for £2000. These convinced

him that, instead of checking the outflow of the beneficence of Glasgow, Mr. Carnegie's generosity was like to prove a stimulus to further and greater liberality. He must say he still felt a certain degree of difficulty with regard to Mr. Carnegie's gift, in that department of it which touched upon freeing education from the payment of fees. He thought the principle was a dubious one, mainly because it had a tendency to sap the sturdy independence of the Scottish character which disdained to receive from the hand of another that for which it was able to strive for itself. He should regret if in the slightest degree it lowered the love of honest labour, and the desire and effort to make their own way in the world, which was a characteristic of the Scots. But nothing could be more praiseworthy than Mr. Carnegie's generosity. He only wished he had not cut off from the range of his benefactions what they used to call the Humanities; for at the root of all sound education, whatever career a young man might follow, there must lie the foundation of a solid education—an education, moral and intellectual, in the highest development of the character, of the mental faculties of the whole man, not merely in a training in the art of making money and "getting on" in business. He was deeply sensible of the kindness with which his own name had been received at this crowning function of a very notable celebration, and which, he was proud to think, so large and illustrious a company as had assisted at it regarded as a great success.

Lord Kelvin, in proposing the "Other Universities and Colleges at Home and Abroad," said the work of the Universities, which was that of increasing knowledge and giving higher education to their people, was a work of world-wide importance, and of common value to all the nations of the world. They had among them that night distinguished representatives of this great association, this true commonwealth of learning—many who had their homes in Europe, in Asia, in Australia, in Canada, in the British Colonies, and in the islands of the sea. They had men amongst them who had come, and he wished to take that opportunity of thanking them for coming, to show

their sympathy with and to honour the ancient University of Glasgow. He would have liked to have said a great deal more, but he must not trespass on their patience. He would have liked to have referred to the common connection between Universities—how when a discovery was made on the other side of the globe it was telegraphed all over the world, and immediately the whole world got the benefit. Another thing he would have liked to speak of was the good-fellowship and the sympathy of the members of the different Universities. It had been said that science had no country. He felt that was only partially true. Science belonged to all countries of the world. There was no lack of patriotism among scientific men in the Universities in different parts of the world. Come what might the professors in the different Universities would remain good friends with one another, and they would not be estranged even by such a calamity as a European war. May it never come. He thought such an assembly as they had now, representing the intellects of all the countries of the world, was a grand peace-promoting and peace-preserving influence. Lord Kelvin concluded by coupling with the toast the names of Sir Richard Jebb, of Cambridge, and Count Goblet d'Alviella, of Brussels.

Sir Richard Jebb, in responding, said that he was sure he expressed what was felt by every delegate from Universities and Colleges present, when he said they felt deep gratitude for the warm welcome which had been accorded to them, and for the many hospitalities they had received during these three memorable days. It was impossible to read the list of the Universities and Colleges of this country who had sent delegates, without being reminded of the vast extension of University life in our country during the last seventy years. Seventy years ago there were five Universities in Scotland, there were two Universities in England, and there was that illustrious body, the University of Ireland. How many had since been added? It was, he thought, five years before the beginning of the reign of the late Queen that the University of Durham received a new charter. Four years later a charter

was given to the University of London, which was constituted as an examining body. Then there was a pause, but towards the end of that great reign a new cluster of sisters was added to the company. It was in 1880 that the three great local Colleges of Liverpool, Manchester, and Leeds acquired unity in the Victorian University. In the same year the Royal University of Ireland received its charter. Thirteen years later the University of Wales was founded. Then two years ago the University of London was transformed by becoming not only an examining but a teaching body, and only last year the capital of the Midlands acquired a seat of learning, which enabled them to greet in the Bute Hall on Wednesday the Principal of the University of Birmingham.

But it was not only the number of the universities which had increased during the Victorian age; the scope of their studies had also been transformed. Were this the eighth jubilee of the University of Glasgow—were they speaking in 1851—the speaker might have said that the relation between the newer kinds of knowledge and the universities offered some analogy to that, which existed in the year when Nicholas V. founded the University of Glasgow. In 1451 there was a new learning. That new learning was the resuscitated knowledge of classical antiquity, but the new learning was not fostered in the bosom of the universities—it was by the efforts of the great humanists. Four hundred years passed. In 1851 there was again a new learning knocking at the doors of the universities, but then it was the new study of the natural sciences. They all knew the battle its illustrious champions had to fight, before the new learning acquired the footing in the universities which it had now won, which it was ever improving, and which it would for ever hold. The victory had been won, and in 1901 the universities of our country were feeling more or less the pressure of the demand, sometimes vaguely called utilitarian. We were told from many quarters, and in many tones, that the subjects and methods of university study must be brought into more direct and immediate relations with the pursuits of professional careers. This was a demand which the universities could not resist. It was a

demand founded largely in reason. It was a demand which many of our universities and colleges, especially those of the newer type, as well as those more ancient, were doing their best to meet; but it was also a demand which imposed upon them a clear duty. Their duty as universities and as seats of the highest education was not merely to yield to that demand; their duty was to guide it and instruct it. One function of the university was to safeguard the intellectual standard of the nation; one of their functions was to take heed, when the demand for useful knowledge was used in relation to higher education, that the term should not be misinterpreted or degraded. It was their function to explain what was utility in regard to the higher education. The truly useful studies of the higher education were those which developed the faculties of the mind and disciplined the intelligence. It was when the mind had been disciplined and the faculties had been educated and trained, that all technical and special knowledge could be most easily and most speedily acquired.

Another duty which would be incumbent on the universities, at this time, was to take care that while every branch of education was encouraged by the amplest provision made for scientific research in every field, the time and place should also be reserved for those liberal and humanising studies which cultivated the imagination and educated the emotions. If you do not care for Greek and Latin classics, if you think them obsolete and useless, very well. Let modern languages be well taught, let the great literature of our own country be appealed to; let the great literatures of other countries be intelligently studied, for if they are properly treated they can furnish estimable channels for all the best influences of humanism. But in truth there could not be any real conflict between the new studies and the old, if they were soundly pursued. There could be no discord between the academic spirit in its better and its loftier forms and the spirit which animated in general men of action.

Count Goblet d'Alviella, also responded. He said that Glasgow was a city which in industry, wealth, and population had few, if any, parallels outside the young States

of the New World. There were in Scotland two large cities —one was called, and rightly, the Athens of the North. The Athens of the Old World had an intellectual rival—a town famous not only for its learning and general culture, which had left a deep impression on philosophy and religion, but also for its trade and commerce, that made it for a period the emporium of the world. Now if Edinburgh deserved to be called Athens, he could not see why Glasgow should not be called Alexandria.

Lord Reay gave "The Franco-Scottish Association." He wished to tell our French friends that the old friendship which had always prevailed in Scotland for their country was as much alive as ever, and that they wished to deal with them as old friends. If they envied them for anything it was the great generosity of their Government towards education, and the fact that their Parliament never refused, on the estimates, any money that was asked for the universities; while they might envy us for our benefactors who left our shores poor and came back to enrich us with the spoil which they had won. In parting, let him give them the assurance that the Scottish universities would work with the French universities in giving to the youth of the future—and on the French youth and on the Scottish youth depended the future—that respect for the past, for old traditions, which was so strong in Scotland, and which he believed was not dead in France.

The Count de Franqueville, in reply, said that the Institute of France, of which he was president, was not a teaching body, but they desired to pay their respects to Glasgow University because of the old and intimate connection which existed very happily between France and Scotland at the time of the birth of Glasgow University, and because of the prominent place taken by Glasgow men in their Institute of Paris. Among their members were Lord Kelvin, Lord Lister, and Sir Joseph Hooker. He hoped when the next jubilee of the University was celebrated the Institute of France would have among its members of the time many Kelvins, many Listers, and many Hookers.

Lord Strathcona and Mount Royal gave the last toast on the list—"The Lord Provost and Corporation of Glasgow." He spoke of the great growth of Glasgow during the past 100 years, and said it was to the excellent administration of the city by the Provost, Bailies, and Council that that progress was due. His Lordship expressed the indebtedness which he felt for Mr. Carnegie's munificent gift to the universities, and also for his generosity to the city in helping its establishment of free libraries—gifts which would be a blessing to generations of our fellow-countrymen, and promote the good of humanity elsewhere.

The Lord Provost expressed the gratitude of the Corporation of Glasgow to Lord Strathcona for the generous appreciation he had shown of the efforts which the city had made in the direction of the social and general improvement and culture of its people. He assured them that the Corporation realised it as a great privilege to have been associated with their ancient University in that unique and successful celebration, and for his part he esteemed it one of the highest honours of his life to have been permitted to preside over that great and representative gathering.

The proceedings then terminated with the singing of "Auld Langsyne."

EXCURSION ON THE CLYDE.

THE benignant weather, which had attended the University's guests since their arrival in Glasgow, did not fail them on the final day of the festival. At 10 a.m. on the 15th June two special trains conveyed an enthusiastic party to Prince's Pier, Greenock, whence the "Glen Sannox," the premier boat of the Glasgow and South-Western Railway's fleet of steamers, carried them up Loch Long to the entrance of Loch Goil, thence along the shores of Cowal and through the cluster of yachts which watched the race between the "Meteor" and the "Cariad," into the Kyles of Bute and,

after a brief stay in Loch Riddan, round the Island of Bute, and back to Greenock in time to reach Glasgow by 6.30. The day was fine throughout, and our guests—the foreigners especially—were enraptured with the varied beauties of the Firth of Clyde.

So ended our too brief days of "goodliest fellowship." The days have passed, but no oblivion can overtake their memory: *Manet mansuraque est.*

THE ADDRESSES AND LETTERS OF CONGRATULATION

It has been suggested that a brief general account of the addresses and letters of congratulation might prove of interest. The following is a list of the various bodies and individuals who presented formal addresses in connection with the celebration:

FOREIGN COUNTRIES.

AUSTRIA-HUNGARY

University of Agram.
University of Buda-Pesth.
University of Cracow.
University of Czernowitz.
University of Gratz.
University of Innsbruck.
University of Klausenburg.
University of Lemberg.
University of Prague (Bohemian).
University of Prague (German).
Bohemian Academy of Science, Literature, and Art, Prague.
University of Vienna.

BELGIUM

Free University of Brussels.
University of Ghent.
University of Liege.
Catholic University of Louvain.

DENMARK

University of Copenhagen.

FINLAND

University of Helsingfors.
Finland Society of Sciences, Helsingfors.

FRANCE

University of Besançon.
University of Clermont-Ferrand.
University of Grenoble.
University of Lille.
University of Lyons.
University of Aix-Marseilles.
University of Montpellier.
University of Paris.
University of Rennes.

GERMANY

University of Berlin.
Royal Prussian Academy of Sciences, Berlin.
University of Bonn.
University of Erlangen.
University of Freiburg.
University of Giessen.
University of Göttingen.
University of Greifswald.
University of Halle.
University of Heidelberg.
University of Königsberg.
University of Leipzig.
Royal Saxon Society of Sciences.
University of Marburg.

GERMANY

University of Munich.
University of Rostock.
University of Strasburg.
University of Tübingen.
University of Würzburg.

HOLLAND

Municipal University of Amsterdam.
Free University of Amsterdam.
Royal Academy of Sciences, Amsterdam.
University of Groningen.
University of Leyden.
University of Utrecht.

ITALY

University of Bologna.
University of Catania.
University of Ferrara.
University of Genoa.
University of Messina.
Royal Society of Letters and Arts, Naples.
University of Padua.
University of Parma.
University of Pavia.
University of Pisa.
University of Rome.
R. Accademia dei Lincei, Rome.
Italian Society of Sciences, Rome.
Professor Carlo Reymond, Turin.
University of Urbino.
Royal Institute of Science, Letters, and Art, Venice.

JAPAN

University of Tokyo.

NORWAY

University of Christiania.

PORTUGAL

University of Coimbra.

RUSSIA

University of Charkow.
University of Kasan.
University of Kieff,
University of Moscow.
Imperial Society of Naturalists, Moscow.
Professor N. Umov, Moscow.
University of Odessa.
University of St. Petersburg.
Imperial Military Academy of Medicine, St. Petersburg.
University of Warsaw.

SPAIN

University of Saragossa.
University of Seville.
Royal Academy of Spain, Madrid.

SWEDEN

University of Lund.
University of Upsala.
Royal Society of Sciences, Upsala.

SWITZERLAND

University of Basle.
University of Berne.
University of Fribourg.
University of Geneva.
University of Lausanne.
University of Neuchatel.
University of Zurich.

UNITED STATES OF AMERICA

University of Michigan, Ann Arbor.
Johns Hopkins University, Baltimore, Md.
University of California, Berkeley.
American Academy of Arts and Sciences, Boston, Mass.
[Harvard University, Cambridge, Mass.]*
University of Missouri, Columbia.
Dartmouth College, Hanover, New Hampshire.

*Owing to an accident the message from Harvard University was not received till after the celebrations.

UNITED STATES OF AMERICA

Cornell University, Ithaca, N.Y.
University of Wisconsin, Madison
Yale University, New Haven, Conn.
American Oriental Society, New Haven, Conn.
Columbia University, New York.
Union Theological Seminary, New York.
University of Pennsylvania, Philadelphia.
American Philosophical Society, Philadelphia.
Historical Society of Pennsylvania, Philadelphia.
Princeton University, New Jersey.
Catholic University, Washington, D.C.
Georgetown University, Washington, D.C.
National Academy of Science, Washington, D.C.
Smithsonian Institution, Washington, D.C.
American Philological Association.
Archaeological Institute of America

BRITISH COLONIES AND DEPENDENCIES

AUSTRALIA

University of Adelaide.
University of Sydney.

CANADA

Dalhousie University, Halifax, Nova Scotia.
Queen's College, Kingston.
M'Gill University, Montreal.
University of Toronto.

INDIA

University of Allahabad.
University of Bombay.
University of Calcutta.
University of Madras.

MALTA

University of Malta.

NEW ZEALAND

University College, Auckland.
University of New Zealand, Wellington.

UNITED KINGDOM

ENGLAND

Birmingham University.
Cambridge University.
Durham University.
London University.
Oxford University.

Cirencester—Royal Agricultural College.
Congregational Colleges.
Egham—Holloway College.
Eton College.
Leeds—Yorkshire College.
Liverpool—University College.

LONDON.

Bedford College for Women.
King's College.
University College.
Royal College of Physicians.
Royal College of Surgeons.

ENGLAND

Manchester—Owens College.
Newcastle-on-Tyne—Durham College of Science.
Nottingham—University College.
Oxford—Somerville College.
Sheffield—University College.
Staines—Cooper's Hill College.
Winchester College.

Cambridge Antiquarian Society.
Cambridge Philosophical Society.

LONDON

British Association for the Advancement of Science.
British Medical Association.
Chemical Society.
City and Guilds of London Institute.
General Medical Council.
Geological Society.
Glasgow University Club.
Institute of Chemistry.
Institution of Civil Engineers.
Institution of Electrical Engineers.
Iron and Steel Institute.
Mineralogical Society.
Physical Society.
Royal Astronomical Society.
Royal Geographical Society.
Royal Institute of Public Health.
Royal Institution of Great Britain.
Royal Society.
Society of Antiquaries.
Society of Chemical Industry.
Society for the Promotion of Hellenic Studies.

Manchester—Literary and Philosophical Society.
Oxford—Philological Society.

IRELAND

Trinity College, Dublin.
Royal University of Ireland.

Belfast—Queen's College.
Galway—Queen's College.

Dublin—Royal Irish Academy.

WALES

University of Wales.

Aberystwyth—University College.
Bangor—University College.
Cardiff—University College.
Lampeter—St. David's College.

SCOTLAND

Aberdeen University.
Edinburgh University.
St. Andrew's University.

Aberdeen—Blair's College.

EDINBURGH

Fettes College.
Royal College of Physicians.
Royal College of Surgeons.

GLASGOW

Anderson's College.
Faculty of Physicians and Surgeons.
St. Mungo's College.
United Free Church College.

EDINBURGH

Institute of Bankers in Scotland.
Royal Scottish Geographical Society.
Royal Society.
Scottish Meteorological Society.

GLASGOW

Faculty of Procurators.
High School.
Philosophical Society.
United Free Church Presbytery of Glasgow.

Letters or telegrams of congratulation were also received from His Majesty the King, His Holiness the Pope, Dr. Nansen, Prof. H. Moissan, Paris, and Henryk Sienkiewicz, Warsaw, as well as from the following:

Royal Danish Society of Science, Copenhagen.

Faculty of Protestant Theology, Montauban.

University of Breslau.
University of Heidelberg.
University of Jena.
Royal Bavarian Academy of Science, Munich.

University of Cagliari.
Royal Institute of Science and Letters of Lombardy, Milan.

University of Dorpat.

Imperial Academy of Science, St. Petersburg.

Swedish Academy, Stockholm.

Indiana University, Bloomington.
University of Minnesota, Minneapolis.

Royal Society of Victoria, Melbourne.

University College, Bristol.
Haileybury College, Hertford.

Royal College of Physicians, Dublin.

Taken together, the documents constitute a permanent record of no ordinary value. They number 228 in all. An analysis of the languages employed shows that 146 are written in Latin, 56 in English, 8 in German, 7 in French, 3 in Welsh (with Latin translation), 3 in Italian, 2 in Sanskrit, 1 in Russian, 1 in Czechish, and 1 in Japanese. It will thus be seen that the majority have elected to use the vehicle which the tradition of mediaeval times has consecrated as appropriate for communication between Universities and between learned men generally. Many happy examples prove once again how conspicuously well adapted Latin is for any occasion that calls for unusual dignity of expression. Where there is so much that is excellent, selection becomes a matter of extreme difficulty. No specimen, however, is more suitable for quotation than the greeting which the youngest of Scottish Universities sends to her older sister, announcing that the Deans of the six Faculties have been chosen as delegates to convey good wishes, and expressing the hope that the celebration may be as striking a testimony to the culture and intellectual

activity of Glasgow as the Exhibition has been to her practical energy and her material prosperity. The address is given here precisely as it stands. Those who read it through, will feel that translation would only spoil it.

" Cancellario Amplissimo,
Curiae, Senatui Universitatis Glasguensis
Rector Senatusque
Universitatis Edinburgensis
S. P. D.

Litteris vestris acceptis, viri optimi et doctissimi, et laetati sumus, et, ut statim rescripsimus, legatos mittere libenter constituimus, qui feriis vestris natalique huic tam insigni celebrando interessent. Nempe hoc et vicinitas postulare videbatur et studiorum communitas et vetusta amicitia ut quo vos gaudio gauderetis eo nostros quoque animos adfici testificaremur. Mittimus igitur ad vos eos viros quos dignissimos maximeque idoneos arbitrabamur, Decanos scilicet sex Facultatum, qui et Facultatum suarum pro salute vestra vota ac voluntates vobis deferant et totius Academiae nomine, cuius velut signiferi ac principes sunt, diem hunc tam laetum agentibus gratulentur.

Junior igitur seniorem: velut sororem soror Academiam vestram Academia nostra salvere quam plurimum jubet, optatque et a Deo Optimo Maximo precatur ut quae vobis usque ad hunc diem prosecuta est felicitas ea in perpetuum fruamini utque opibus, aedificiis, alumnorum numero locupletatam in dies magis corroboratamque Academiam vestram sentiatis, omnium inter omnes concordia, veritatis studio, docentium fide ac sapientia per novum hoc saeculum, sicut praeterito saeculo floruit, florentem videatis: utque urbi magnae, cuius cives estis, quae nunc ex toto orbe terrarum quicquid ubique est in Artibus fabrilibus pulchri perfectique ad se arcessit, hoc quoque feriis vestris decus adiciatis ut litterarum humanitatisque ac philosophiae studium praeter alias urbes excoluisse videatur. Hanc nostram erga vos voluntatem uberius disertiusque explicabunt ei quos ad vos legavimus: his eam litteris explicare voluimus, ut non voce tantum sed stili etiam chartaeque diuturniore testimonio

comprobetur, utque lingua Latina, qua per tot saecula inter se colloqui Academiae omnes solitae sunt, ne inter hodiernos quidem strepitus vitaeque nostrae sollicitudinem ac festinationem conticuisse omnino et vim suam perdidisse existimetur. Fausta vobis et prospera omnia ut contingant optamus.

Dabamus Edinburgi Mense Junio MCMI."

There is another beautiful piece of Latin which it is impossible to refrain from printing in full. In this case, however, some attempt at an English rendering is, for various reasons, desirable.

" *V. C.* HERBERTO STORY *Praefecto et Vice-Cancellario Item Rectori Doctoribus atque Auditoribus Universitatis Studiorum Glasguensis,*

LEO P. P. XIII.

Iucundas scitote Nobis communes litteras vestras fuisse. Memoriam beneficiorum colere, multoque magis ferre prae se palam ac libere, virtus est non humilia nec angusta sentientis animi: atque istiusmodi virtutem libet quidem in vobis agnoscere, studiorum optimorum ingeniique decora praeclare cumulantem. Quod enim Lyceum magnum, ubi vestra omnium desudat industria, debet Apostolicae Sedi origines suas, idcirco sub solemnia eius saecularia ad romanum Pontificem vestra provolavit cogitatio memor, atque ultro arcessivistis Nosmetipsos in laetitiae societatem, tamquam desideraturi aliquid, si voluntatis Nostrae significatione in hoc tempore caruissetis. Equidem gratum habemus facimusque plurimi tale officium humanitatis cum iudicii aequitate coniunctum. Memoria autem vetera repetentes, utique diversamur apud vos animo per hos dies reique tam utiliter a Nicolao V. Pontifice Maximo institutae cogitatione delectamur. Quo quidem instituto certe magnus ille decessor Noster de Scotorum genere immortaliter meruit; praetereaque et ipse in aperto posuit romani pontificatus virtutem in elegantiam doctrinae, in studia ingenuarum artium, quibus maxime rebus alitur humanitas gentium, ad incrementum suapte natura influere. Cetera istud maiorum disciplinarum nobile domicilium constanter florere cupimus salutarium ubertate fructuum et gloria nominis; Deumque

omnipotentem comprecamur ut doctos labores vestros omni in genere ad veritatem dirigere, vosque universos perfecta Nobiscum caritate coniungere benigne velit.

Datum Romae apud S. Petrum die IX *Junii Anno* MDCCCCI *Pontificatus Nostri vicesimo quart.*"

Literally translated, the Pope's friendly message reads as follows: "We would have you know that your corporate letter gave Us real pleasure. To cherish the remembrance of benefits, much more to make open and frank acknowledgment of them, is the excellence of a broad and lofty Spirit: and We rejoice to discern this excellence in you, crowning conspicuously the intellectual glories of the highest forms of learning. For, inasmuch as the great College where you all labour strenuously, owes its first beginnings to the Apostolic See, therefore on the eve of its commemorative celebrations your thoughts have mindfully gone forth to the Roman Pontiff, and you have of your kindness invited Us to share in your rejoicing, as if there was something you would miss if you lacked at this season a token of Our goodwill. We are deeply grateful for such a manifestation of kindly thought and unprejudiced judgment, and We appreciate it highly. Calling the past to remembrance, We do indeed dwell with you in spirit throughout these days, and We delight in the imagining of the institution so usefully founded by Pope Nicholas V. By its foundation Our great predecessor undoubtedly laid the Scottish people under a perpetual obligation; he also made it manifest that the influence of the Holy See tends by its very nature towards the encouragement of the graces of learning, and of the pursuit of the liberal arts, which are the means whereby right feeling between nations is chiefly fostered. It is Our earnest wish that that noble home of the higher studies may continue to prosper, bringing forth abundance of good fruit and maintaining its renown; and We pray Almighty God that He may be graciously pleased to direct your learned labours of every sort in the way of truth, and to make you all one with Us in the bond of perfect charity."

Whatever may be the language that is employed, the Spirit that breathes through the addresses and letters is always the same,—a warm recognition of good work done in the past, and a sanguine anticipation of continued success in the future. Thus the General Medical Council congratulates the University as an institution which, "though crowned with the venerable dignity of age, retains the freshness and vigour of youth." The University of Heidelberg points out that its foundation was almost coincident with the invention of the art of printing, and that its contributions to the sum of human knowledge have been many and varied. The words used by the University of Upsala may be taken as typical: "*Vivat, vigeat, floreat nobilis illa Universitas Glasguensis! Laudem quam praeteritis annis cumulavit, venientibus etiam in majus augeat.* [Life, health, and prosperity to the great University of Glasgow! May she increase, in the years to come, the reputation she has gained in the years that are past.]"

Amid all the unanimity of feeling, however, there is much variety of expression and great wealth of interesting allusion. That the University of Bologna should make special reference to the filial regard cherished for her by the University of Glasgow, is only natural. It is pleasant to find that Glasgow in her turn can rely on the devotion of a daughter beyond the seas. Nothing could well be more cordial than the acknowledgment that comes from the M'Gill University, Montreal: "*Ut enim cum Scoticis Universitatibus summa nobis fuit semper necessitudo ac familiaritas, quippe qui genere, institutis, studiis quoque academicis haud multum simus dissimiles, ita artiore quodam cognationis vinculo vobiscum associati sumus, quod Glasguae natus est, abhinc annos amplius centum et quinquaginta, noster ille conditor Jacobus M'Gill, cuius memoriam grato adhuc animo et summa pietate prosequimur: qui, quanquam iniquo aequoris Atlantici spatio divisus, moribundus quoque dulces reminiscebatur Argos, et voluit in novo domicilio existere Academiam quae vestrae potissimum Universitatis referret speciem. Juvat igitur praedicare a vobis nos per illum taedam illam lucentem accepisse, quae utinam in his terris*

nunquam obscuretur aut evanescat. [While there has always subsisted between ourselves and the Scottish Universities a very intimate connection and friendship, based on similarity of character, of institutions and of studies, we are bound to you by an even closer tie of kinship. For it was at Glasgow that there was born, more than a hundred and fifty years ago, our founder James M'Gill, whose memory we still gratefully and reverently honour. On his deathbed his thoughts turned towards his dear native city, lying far beyond the wide Atlantic, and he resolved that in the country of his adoption there should exist a seat of learning for which your University should provide the chief model. It is a pleasure, therefore, to declare that it was from you that we received by his hand that glowing torch which we trust may never grow dim nor be extinguished in our land.]" The Lucretian metaphor of the last sentence finds an echo—"*per tantam marium longiquitatem*"—from far-off New Zealand, whose University describes itself as keeping alive on the other side of the world a little spark of the higher learning ["*qui penitus toto divisi orbe coloni quasi scintillulam doctrinarum liberalium foveamus*"].

In some addresses the memory of international friendship is awakened. From the University of Paris there come kindly words recalling the days when Scotsmen and Frenchmen were brothers in arms: "*Il nous est doux de nous rappeler aujourd'hui que l'Écosse et la France . . . ont été liées par une confraternité d'armes, qui a eu ses heures héroïques. Ces temps sont à jamais abolis, mais une sympathie y a survécu qui durera toujours.*" Similarly, the University of Norway reminds us that "the history of Scotland and the history of Norway were intimately connected long before the foundation of your renowned University, although that venerable institution has already stood through the vicissitudes of nearly half a thousand years." Again, the University of Lund dwells on the "*pugnas frequentes in quibus Scoti et Sveci signa Magni Gustavi Adolphi nostri sequentes pro libertate fidei et populorum vitam suam fortiter sacrificaverunt* [the many battles

in which Scots and Swedes, following the banner of our great Gustavus Adolphus, bravely laid down their lives for civil and religious liberty]", while the University of Utrecht speaks gratefully of the Scottish soldiers of fortune whose swords helped to win the victories that gave birth to the Dutch Republic. And there are those in Hungary who remember the enthusiasm with which Kossuth was welcomed when he spoke in the City Hall of Glasgow.

The address presented by the University of Zurich takes a singularly appropriate form. It is not an address in the ordinary sense of the term, but a '*Gratulationsschrift*,'—a piece of writing specially composed for the occasion, and embodying the results of original research. This particular example is entitled "Literary Relations between Britain and Switzerland in Reformation Times," and is essentially bibliographical in character. Taking for its motto Wordsworth's

> "Books, we know,
> Are a substantial world,"

it gives a scientifically careful description of all the books written by British authors or relating in any way to Britain, which were printed in Switzerland during the sixteenth century. The list, which is a very considerable one, opens with the second edition of More's *Utopia* (Basle, 1518), and ends with the Zurich reprint of the works of Matthew Paris (1589). Although no University except Zurich published a special book in honour of the occasion, two others forwarded memorial volumes, each containing the history of the corporation whence it came. One of these was Messina, which celebrated its own Ninth Jubilee little more than a year ago. The other was Geneva, a University with which Glasgow has a close personal association. Andrew Melville, our second founder, was for five years one of its teachers. In 1570 he was driven from Geneva by a violent outbreak of the plague. The University of Lausanne has not forgotten that on that occasion he found shelter in the shadow of her walls. The city, fearful of being smitten with infection, shut its gates in the face of the crowd of panic-stricken fugitives. But

the very decree in which this resolution is recorded (19th July, 1570), makes a special exception of a favoured few, among whom there figures "*André Melville, escollier escossois.*"

There are allusions to episodes still richer in romance. The University of Klausenburg claims kinship on the ground that it was in Hungary that the wife of the exiled Aetheling gave birth to "*Sancta illa Margaretha*"—the queen to whom all Scotland owes so much, and to whose memory Glasgow pays a special meed of homage. The German University of Prague tells how a prince of the house of Hapsburg once vainly sought the hand of Mary Stuart, whose granddaughter, two generations later, reigned for a brief season in Bohemia as the consort of the Winter King.

The strongest bonds, however, are those which have been created by the services that *alumni* or teachers of the University have rendered to the great republic of letters and of science. In this respect, the latter part of the eighteenth century was perhaps the most remarkable period in her history. Robert Simson, the mathematician, Alexander Wilson, the astronomer, Joseph Black, the chemist, John Millar, the jurist, are still remembered abroad. Francis Hutcheson and Thomas Reid are often mentioned. William Cullen's achievements in medicine have not been obscured by those of his more brilliant pupil, Hunter. Indeed, it is not as a physician that the latter figures most prominently in the addresses; it is as the founder of the Hunterian Museum. Thomas Campbell, once our Lord Rector, has won special appreciation in Austro-Hungary through his stirring verses on the Battle of Hohenlinden. Practically every country does homage to the memory of Adam Smith, none more warmly than Russia, whose economic problems have to be worked out on so vast a scale. The University of Charkow traces his influence in the movement that led to the freeing of the serfs. Another great name which frequently occurs is that of James Watt. More than one address alludes to the happy coincidence that, while Glasgow University at the opening of the 'century of steam' could boast of its intimate connection with Watt, so now, at the

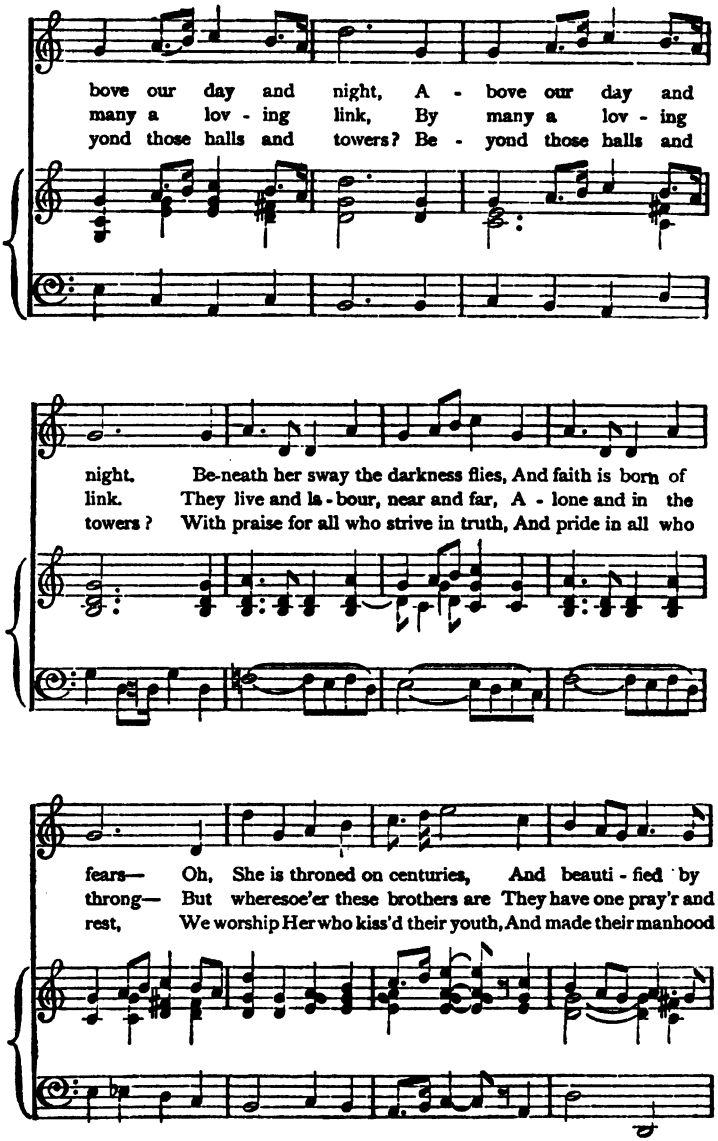
opening of the 'century of electricity,' it can boast of a still more intimate connection with Lord Kelvin. There is a most impressive unanimity in the testimony that comes from every quarter of the globe to the fame of the Emeritus Professor of Natural Philosophy. To the University of Adelaide, for example, he is "*alter Archimedes*," to the Royal Society of Sciences at Upsala he is "*Venerabilis ille physicorum princeps, decus atque ornamentum Universitatis Vestrae.*" Nor is physical science the only department in which Glasgow has, in the nineteenth century, been closely associated with an epoch-making advance. The Faculty of Physicians and Surgeons, Glasgow, says: "We are proud to remember that the Antiseptic System of Surgical Treatment was introduced to the world under the immediate auspices of the University of Glasgow." And the abundant references made, in other addresses, to Lord Lister, show that the fact is fully realised abroad. A more general statement from the Royal Society deserves quotation: "The Roll of its Fellows contains many names also appearing on the roll of the University of Glasgow. And in these latter years the Society has had bonds of rare closeness with the University, for thrice has the Society sought in the University for its President."

When it has such a record to point to, surely the University of Glasgow may justifiably accept the graceful and gracious compliment that comes from the Imperial University of St. Petersburg: "*Cum insigni vestro insignia verba* viam, veritatem, vitam *inscripsissetis, quaenam sibi vellent, exemplis luculentissimis comprobastis.* [You have illustrated by the most brilliant examples the meaning of the noble words you have chosen for your motto.]"

APPENDIX.

FLOREAT ALMA MATER.

come and go; but She re - mains Un -
each new mo - ment's ti - ny stir, The
who can count the gra - cious lives, Whose
Con 8ves.
touched by a - ge's blight; In
sun doth rise and sink O'er
fame is Her's and ours, The
love and dig - ni - ty She reigns A -
men, whose hearts are bound to Her By
no - ble dead whose work sur - vives Be -


bove our day and night, A - bove our day and
many a lov - ing link, By many a lov - ing
yond those halls and towers? Be - yond those halls and
night. Be-neath her sway the darkness flies, And faith is born of
link. They live and la - bour, near and far, A - lone and in the
towers? With praise for all who strive in truth, And pride in all who
fears— Oh, She is throned on centuries, And beauti - fied by
throng— But wheresoe'er these brothers are They have one pray'r and
rest, We worship Her who kiss'd their youth, And made their manhood

years!
song.
blest!
Come, let us honour Her, Sons of to-
day, Sons who re-turn a-gain, Sons grow-ing
grey,— One song for all to sing,